

*Supply Trends Among  
Licensed Health Professions  
Texas, 1980 - 2007  
Third Edition*



**A REPORT PRODUCED BY THE  
HEALTH PROFESSIONS RESOURCE CENTER  
CENTER FOR HEALTH STATISTICS  
TEXAS DEPARTMENT OF STATE HEALTH SERVICES**



December 2007  
Publication No. 25-11847  
E Publication No. 25-11847







## TEXAS DEPARTMENT OF STATE HEALTH SERVICES

DAVID L. LAKEY, M.D.  
COMMISSIONER

1100 WEST 49TH STREET · AUSTIN, TEXAS 78756  
P.O. BOX 149347 · AUSTIN, TEXAS 78714-9347  
1-888-963-7111 · [www.dshs.state.tx.us](http://www.dshs.state.tx.us)  
TDD: 1-800-735-2989

Dear Sir or Madam:

The Texas Department of State Health Services (DSHS) takes pride in presenting *Supply Trends Among Licensed Health Professions, Texas, 1980 - 2007*. This third edition report was produced in collaboration with the East Texas Area Health Education Center, based at The University of Texas Medical Branch at Galveston.

Annually, the Health Professions Resource Center (HPRC) in the Center for Health Statistics collects and compiles statewide demographic and health professions information from state licensing boards. Licensing information that was received for 2007 was used to prepare the tables, graphs, and text for this supply trends report.

Because workforce issues are of paramount importance to the state, we believe this report will be an invaluable document for health providers, planners, researchers, and others who are interested in the supply status of health professionals in Texas. This report and other data are available electronically at <http://www.dshs.state.tx.us/CHS/hprc/>.

For further information, please contact Brian King, Program Director, Health Professions Resource Center. They also welcome your comments and suggestions regarding this report at 512-458-7261 or via email at [hprc@dshs.state.tx.us](mailto:hprc@dshs.state.tx.us).

Sincerely,

Bruce A. Gunn, Ph.D.  
Manager, Health Provider Resources Branch



# Supply Trends Among Licensed Health Professions Texas, 1980 - 2007

Third Edition

Health Professions Resource Center  
December 2007

## THIS REPORT PRODUCED BY:



**Texas Department of State Health Services**  
Commissioner  
David L. Lakey, MD.

**Center for Health Statistics**

**Health Provider Resources Branch**

Bruce A. Gunn, Ph.D., Manager

**Health Professions Resource Center**

Brian King, Program Director



**Statewide Health Coordinating Council**

Ben Raimer, M.D., Chairman

<http://www.dshs.state.tx.us/chs/shcc/default.shtm>

## IN COLLABORATION WITH:



**East Texas Area Health Education Center**

The University of Texas Medical Branch at Galveston

Steven R. Shelton, M.B.A., PA-C, Executive Director

<http://www.etxahec.org>

*This report can be reproduced and distributed without permission.  
Proper acknowledgement is expected.*



# Supply Trends Among Licensed Health Professions

## Texas, 1980 - 2007

### Third Edition

Prepared By:  
Health Professions Resource Center  
Center for Health Statistics  
Bruce Gunn, Ph.D., Manager  
Brian King, Program Director  
Rosemary Ang, Research Specialist

#### **Contact Information:**

Health Professions Resource Center  
Center for Health Statistics - MC 1898  
Texas Department of State Health Services  
P.O. Box 149347  
Austin, Texas 78714-9347  
(512)458-7261  
email: [hprc@dshs.state.tx.us](mailto:hprc@dshs.state.tx.us)  
website: <http://www.dshs.state.tx.us/CHS/hprc/>

◆ ◆ ◆

This report would not be possible without the cooperation and assistance of personnel from the following agencies, bureaus, divisions, and programs:

Texas State Data Center  
University of Texas - San Antonio  
Texas Department of State Health Services  
Professional Licensing and Certification Unit

Texas Board of Chiropractic Examiners

Texas State Board of Dental Examiners

Texas Medical Board

Texas Board of Nursing

The Executive Council of Physical Therapy and Occupational Therapy Examiners

Texas Optometry Board

Texas State Board of Pharmacy

Texas State Board of Podiatric Medical Examiners

Texas State Board of Examiners of Psychologists

---

---





**SUPPLY TRENDS AMONG LICENSED HEALTH PROFESSIONS**  
**TEXAS, 1980 - 2007**  
*Third Edition*

**TABLE OF CONTENTS**

EXECUTIVE SUMMARY .....	xi
INTRODUCTION .....	1
About This Report .....	1
About Texas .....	2
About the Border Area .....	7
About the Data In This Report .....	8
About Health Professional Shortage Areas .....	9
About the Health Professions Resource Center .....	11
About the East Texas Area Health Education Center.. ..	11
MEDICAL PROFESSIONS .....	13
Direct Patient Care Physicians .....	15
Primary Care Physicians .....	18
Physician Assistants .....	21
Chiropractors .....	24
Podiatrists .....	27
NURSING PROFESSIONS .....	31
Nurse Practitioners .....	33
Certified Nurse Midwives .....	36
Registered Nurses .....	39
Licensed Vocational Nurses .....	42
DENTAL PROFESSIONS .....	45
Dentists .....	47
Dental Hygienists .....	50
ALLIED HEALTH PROFESSIONS .....	53
Medical Radiologic Technologists .....	55
Occupational Therapists .....	58
Optometrists .....	61
Pharmacists .....	64
Physical Therapists .....	67
Psychologists .....	70
APPENDICES .....	73
APPENDIX I: Texas Population by County, 2007 .....	75
APPENDIX II: U.S. and Texas Population, 1980-2007 .....	78

**SUPPLY TRENDS AMONG LICENSED HEALTH PROFESSIONS**  
**TEXAS, 1980 - 2007**  
*Third Edition*

**FIGURES**

Figure 1. Metropolitan and Nonmetropolitan Counties, Texas, 2007.....	3
Figure 2. Population Growth Relative to 1980, United States and Texas, 1980-2007.....	4
Figure 3a. Percent Change in Population, 1987-2007, Texas.....	5
Figure 3b. Percent Change in Population, 1997-2007, Texas .....	5
Figure 4. Percent Black Population, 2007, Texas.....	6
Figure 5. Percent Hispanic Population, 2007, Texas .....	6
Figure 6. Percent Population age 65+, 2007, Texas.....	7
Figure 7. Border and Non-Border Counties, Texas .....	8
Figure 8. Primary Care Health Professional Shortage Areas (HPSAs), Texas .....	10
Figure 9. Dental Health Professional Shortage Areas (HPSAs), Texas. ....	10
Figure 10. Direct Patient Care (DPC) Physicians per 100,000 Population, U.S. and Texas, 1981 to 2007 ...	16
Figure 11. DPC Physicians per 100,000 Population, Texas, 2007 .....	16
Figure 12. DPC Physicians per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1981 to 2007 .....	17
Figure 13. Percent Change in Ratio of DPC Physicians per 100,000 Population from 1998 to 2007 .....	17
Figure 14. Primary Care (PC) Physicians per 100,000 Population, U.S. and Texas, 1981 to 2007 .....	19
Figure 15. PC Physicians per 100,000 Population, Texas, 2007 .....	19
Figure 16. PC Physicians per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1981 to 2007. ....	20
Figure 17. Percent Change in Ratio of PC Physicians per 100,000 Population from 1998 to 2007 .....	20
Figure 18. Physician Assistants per 100,000 Population, U.S. and Texas, 1989 to 2007 .....	22
Figure 19. Physician Assistants per 100,000 Population, Texas, 2007 .....	22
Figure 20. Physician Assistants per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1989 to 2007 .....	23
Figure 21. Percent Change in Ratio of Physician Assistants per 100,000 Population from 1998 to 2007 .....	23
Figure 22. Chiropractors per 100,000 Population, U.S. and Texas, 1980-2007 .....	25
Figure 23. Chiropractors per 100,000 Population, Texas, 2007 .....	25
Figure 24. Chiropractors per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1980-2007 .....	26
Figure 25. Percent Change in Ratio of Chiropractors per 100,000 Population from 1999 to 2007 .....	26

Figure 26. Podiatrists per 100,000 Population, U.S. and Texas, 1981-2007 .....	28
Figure 27. Podiatrists per 100,000 Population, Texas, 2007 .....	28
Figure 28. Podiatrists per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1981-2007 .....	29
Figure 29. Percent Change in Ratio of Podiatrists per 100,000 Population from 1999 to 2007 .....	29
Figure 30. Nurse Practitioners per 100,000 Population, U.S. and Texas, 1990-2007 .....	34
Figure 31. Nurse Practitioners per 100,000 Population, Texas, 2007 .....	34
Figure 32. Nurse Practitioners per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1990-2007 .....	35
Figure 33. Percent Change in Ratio of Nurse Practitioners per 100,000 Population from 1998 to 2007 .....	35
Figure 34. Certified Nurse Midwives (CNMs) per 100,000 Childbearing Age Females, U.S. and Texas, 1990-2007 .....	37
Figure 35. Certified Nurse Midwives per 100,000 Childbearing Age Females, Texas, 2007 .....	37
Figure 36. CNMs per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1990-2007 .....	38
Figure 37. Percent Change in Ratio of CNMs per 100,000 Population from 1998 to 2007 .....	38
Figure 38. Registered Nurses per 100,000 Population, U.S. and Texas, 1986-2007 .....	40
Figure 39. Registered Nurses per 100,000 Population, Texas, 2007 .....	40
Figure 40. RNs per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1986-2007 .....	41
Figure 41. Percent Change in Ratio of RNs per 100,000 Population from 1998 to 2007 .....	41
Figure 42. Licensed Vocational Nurses per 100,000 Population, US and Texas, 1981-2007 .....	43
Figure 43. Licensed Vocational Nurses per 100,000 Population, Texas, 2007 .....	43
Figure 44. LVNs per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1981-2007 .....	44
Figure 45. Percent Change in Ratio of LVNs per 100,000 Population from 1998 to 2007 .....	44
Figure 46. Dentists per 100,000 Population, U.S. and Texas, 1981-2007 .....	48
Figure 47. Dentists per 100,000 Population, Texas, 2007 .....	48
Figure 48. Dentists per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1981-2007 .....	49
Figure 49. Percent Change in Ratio of Dentists per 100,000 Population from 1998 to 2007 .....	49
Figure 50. Dental Hygienists per 100,000 Population, U.S. and Texas, 1981-2007 .....	51
Figure 51. Dental Hygienists per 100,000 Population, Texas, 2007 .....	51
Figure 52. Dental Hygienists per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1981-2007 .....	52

Figure 53. Percent Change in Ratio of Dental Hygienists per 100,000 Population from 1998 to 2007 .....	52
Figure 54. Medical Radiologic Technologists per 100,000 Population, U.S. and Texas, 1994-2007 .....	56
Figure 55. Medical Radiologic Technologists per 100,000 Population, Texas, 2007 .....	56
Figure 56. Medical Radiologic Technologists per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1994-2007 .....	57
Figure 57. Percent Change in Ratio of Medical Radiologic Technologists per 100,000 Population from 1998 to 2007 .....	57
Figure 58. Occupational Therapists per 100,000 Population, U.S. and Texas, 1990-2007 .....	59
Figure 59. Occupational Therapists per 100,000 Population, 2007 .....	59
Figure 60. Occupational Therapists per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1991-2007 .....	60
Figure 61. Percent Change in Ratio of Occupational Therapists per 100,000 Population from 1999 to 2007 .....	60
Figure 62. Optometrists per 100,000 Population, U.S. and Texas, 1977-2007 .....	62
Figure 63. Optometrists per 100,000 Population, Texas, 2007 .....	62
Figure 64. Optometrists per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1977-2007 .....	63
Figure 65. Percent Change in Ratio of Optometrists per 100,000 Population from 1999 to 2007 .....	63
Figure 66. Pharmacists per 100,000 Population, U.S. and Texas, 1978-2007 .....	65
Figure 67. Pharmacists per 100,000 Population, Texas, 2007 .....	65
Figure 68. Pharmacists per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1978-2007 .....	66
Figure 69. Percent Change in Ratio of Pharmacists per 100,000 Population from 1999 to 2007 .....	66
Figure 70. Physical Therapists per 100,000 Population, U.S. and Texas, 1977 to 2007 .....	68
Figure 71. Physical Therapists per 100,000 Population, Texas, 2007 .....	68
Figure 72. Physical Therapists per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1977 to 2007 .....	69
Figure 73. Percent Change in Ratio of Physical Therapists per 100,000 Population from 1999 to 2007 .....	69
Figure 74. Psychologists per 100,000 Population, U.S. and Texas, 1999 to 2007 .....	71
Figure 75. Psychologists per 100,000 Population, Texas, 2007 .....	71
Figure 76. Psychologists per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1999 to 2007 .....	72
Figure 77. Percent Change in Ratio of Psychologists per 100,000 Population from 1999 to 2007 .....	72






# Executive Summary

This report focuses on seventeen health professions in Texas. In addition to reporting the supply of health professionals practicing in Texas in 2007 for each of these professions, this report also shows the trends in the supply of the various providers over the last two decades, and compares those trends with the national trends. These comparisons show if Texas is above or below the national average, and if the supply of these professionals in Texas, and the U.S., has been increasing or declining over the years.

Most of the data are presented in terms of ratios and reflect the number of providers per 100,000 population. This allows comparisons to be made between areas with different populations, such as the U.S. and Texas, or metropolitan counties and nonmetropolitan counties. The provider-per-population ratio is a more accurate indicator of the supply of health providers in a given area than is the raw number of health providers.

Ratios are presented for Texas and the U.S., and for the metropolitan and nonmetropolitan counties in Texas. The metropolitan and nonmetropolitan areas were further subdivided into border and non-border areas. The border area is detailed on page 8.

## 2007 Supply ratios (number of health care professionals per 100,000 population)



-  Texas ratios are lower than U.S. ratios for most professions (LVNs are a notable exception)
-  Metropolitan county ratios are higher than nonmetropolitan county ratios for most professions (LVNs are again a notable exception)
-  Non-border area ratios are higher than border area ratios
-  The Panhandle, West Texas, and South Texas counties often have lower supply ratios than the rest of the state; most of the counties with no providers are in these areas
-  For most professions, over the last decade, the largest growth in supply has occurred in Central, East, and North-east Texas.

## Provider-to-population ratios in Texas have improved overall over the last two decades for most professions, although several professions have shown a slight decrease since 2002.

## Some counties in Texas have no providers.

## Of the professions included in this report, registered nurses are the most widespread profession throughout the state, with only five of 254 counties having none. At the other end of the spectrum, 213 counties do not have a certified nurse midwife.

## Between 1998 and 2007, the growth rate of nurse practitioners and physician assistants in Texas exceeded the rate for physicians:

-  Nurse practitioners increased their supply ratios at a rate of almost fifteen times faster than direct patient care physicians (101% compared to 7.0%);
-  Physician assistants increased their supply ratios at a rate fifteen times faster than direct patient care physicians (106.3% compared with 7.0%).



# Introduction

The importance of access to health care services cannot be overstated. Everyone, at some point in their lives, will need access to a variety of different types of health care providers. Access can be affected by several factors, among them, economic factors, distance to a provider, and the supply of providers. The supply of providers can affect the timeliness of access. For example, a patient may have to wait longer than is optimal for an appointment if there is a shortage of providers in a certain area. Or, a patient may have to travel a significant distance to reach a provider, an inconvenience in terms of time and travel. This is especially true if the patient does not have a car, or if a provider's office is not located in an area served by public transportation.

By examining trends in the supply and distribution of health care professionals, a wide variety of people, including researchers, legislators, state planners, and health care workers, are able to better understand and influence access to health care in Texas. This report examines the supply and distribution over several years of 17 types of health care providers in Texas and the population patterns for those years. It also compares these trends to national figures.

The Health Professions Resource Center, part of the Center for Health Statistics at the Texas Department of State Health Services, maintains databases on 52 different health professional groups. Only a few years of data are available for some professions; over two decades worth of data are available for other professions. Data for other professions excluded from this report, and additional data on the professions contained in this report, can be found at: <http://www.dshs.state.tx.us/CHS/hprc/>.

## About this report

This report contains narratives, tables, graphs, and maps, showing the supply, distribution, and changes in supply of various health professions in Texas. Most of the data are presented in the form of ratios. These ratios are calculated by dividing the number of providers in a given health profession by the population of the area being evaluated, and multiplying that number by 100,000. This results in a ratio of providers per 100,000 population that can be used to compare areas with very different populations. The higher the ratio, the more providers that are available to serve a given area, relative to the population. Also, a county may have a very small population but have a high ratio with only one or two providers. Thus, small rural counties can have higher ratios than larger urban counties, even though there are usually greater numbers of providers in those larger counties. Ratios standardize the supply of providers relative to a given population size over time in years.

This report, and two previous editions, are available on the Health Professions Resource Center's website at: <http://www.dshs.state.tx.us/CHS/hprc/>. Many other informative reports are available as well.

The Texas population numbers that were used to calculate the ratios in this report were estimates provided by the Texas State Data Center at the University of Texas in San Antonio (TXSDC). The population estimates for a given year in this report may not necessarily be the same as estimates in other reports or websites because they are revised over time by TXSDC. More information on population statistics, and how they are collected and estimated, is available at TXSDC's website at <http://txsdc.utsa.edu/>.

The population data used for the United States statistics in the tables and charts of this report were obtained from the U.S. Bureau of the Census. Appendix I at the end of this report shows the population for each county in Texas, as well as the poverty rates and percentage of the population that is low income (up to 200% of the federal poverty rate) from the 2000 Census.



## About Texas

Texas is a large and diverse state. In many ways, Texas is one of the most unique states in the nation. The state is second to Alaska in geographic size among the states, and second to California in population. Texas is comprised of 254 counties covering approximately 267,277 square miles (5,363 of which are water) and contained 23,728,510 people in 2007. To travel the approximately 801 miles (as the crow flies; approximately 900 miles by road) from the southern tip of the state to the northwest top of the Panhandle would take about eighteen hours. The largest east to west span is approximately 773 “crow” miles, and 900 road miles. Contained within this large geographic area are a variety of climates, landscapes, animals, plants, cultures, and people. Because of this large diversity, there is no “one size fits all” model for estimating the number of health care professionals needed in Texas.

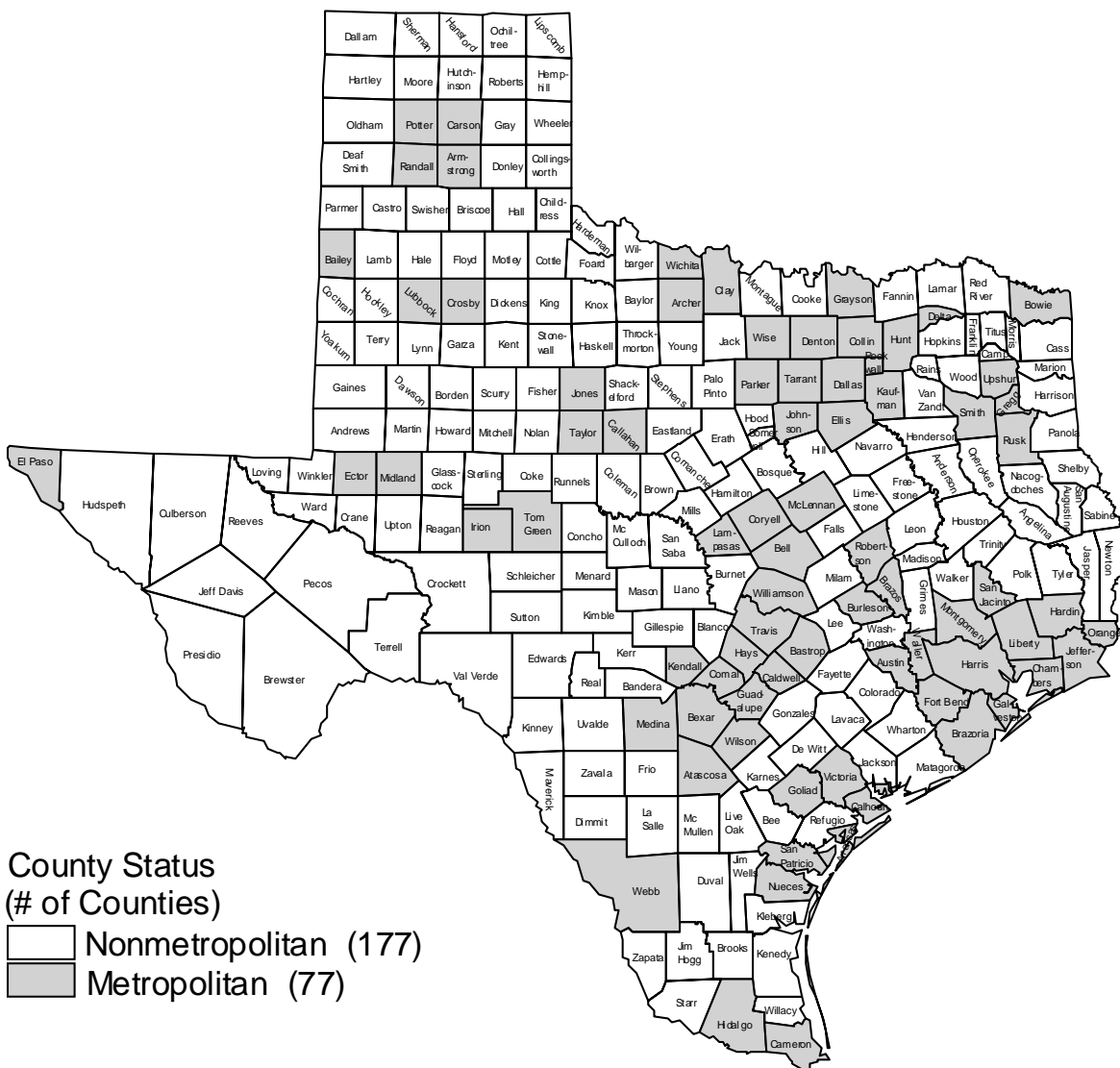
Some areas of Texas, 77 counties, are considered metropolitan (urban) (Figure 1). In 2007, these counties contained 86.9% of the population of Texas, and many of these areas had an abundance of most types of health care providers. However, in some nonmetropolitan (rural) areas, one would have to drive a great distance, in some cases hundreds of miles, to reach a certain type of provider. West Texas in particular has some very large counties geographically, but most of those counties have very small populations. For example, Brewster County is approximately 6,193 square miles with a 2007 population of 9,501 (1.5 people per square mile). In contrast, Dallas County is approximately 880 square miles but had a population of 2,327,105 (2,644 people per square mile). The smallest county in Texas in 2007, by population, was Loving County, with 66 people. The county with the largest population was Harris with 3,801,506 people. Naturally, the densely populated counties have more highways, better developed road systems, and more forms of public transportation, ranging from taxis to buses. All of these characteristics affect access to medical care. In 2007, 64 counties in Texas did not have an acute care hospital; and, 2.3% of the state’s population lived in these counties (2006 Directory of Active Hospitals, health Facility Licensing and Compliance Division, Texas Department of State Health Services; Hospital Tracking Database, Hospital survey Unit, Center for Health Statistics, Texas Department of State Health Services).

There are also economic factors affecting access to health care. In 2000, 25.7% of Texans below the age of 65 (4,712,213 people) did not have health insurance - 31.1% of these were below the age of 19 (Texas Health Facts, <http://www.dshs.state.tx.us/chs/cfs/>). In 2003, the state unemployment rate was 6.7% (an increase from 4.2% in 2000). In 2004, it was estimated that 16.2% of the population was at or below the federal poverty level, and 35% of the population was considered to be low income (up to 200% of the federal poverty level). The U.S. Census Bureau reported that the county with the highest poverty rate in 2004 was Starr County in South Texas, with 34.8% of the population at or below the poverty level. Collin County had the lowest rate (5.5%). In 2005, Starr County in South Texas had the highest percentage of the population considered low income (78.6%). Collin County in North Central Texas had the lowest percentage (12.9%).

Texas also has a diverse population. The population of Texas has been growing steadily, with a growth rate greater than the U.S. average (Figure 2). In 2007, 47.6% of the estimated population was White, 11.3% was Black, 37.0% was Hispanic, and 4.1% of the population was Asian, Native American, and other race/ethnicities. The counties with the largest percentages of Blacks, relative to the total population of the counties, were located in East Texas, while the counties with the largest percentages of Hispanics were in South Texas and Border County areas (Figures 4 and 5). The Hispanic population is growing at a faster rate than the others, and is expected to become the predominant racial/ethnic group in Texas within the next two decades. Because of this growth rate, the White population fell below 50% in 2004 for the first time. Since 2000, the Hispanic population increased from 32.0% to 37.0%, while the White population decreased from 53.1% to 47.6%.



**Figure 1. Metropolitan and Nonmetropolitan Counties, Texas, 2007**

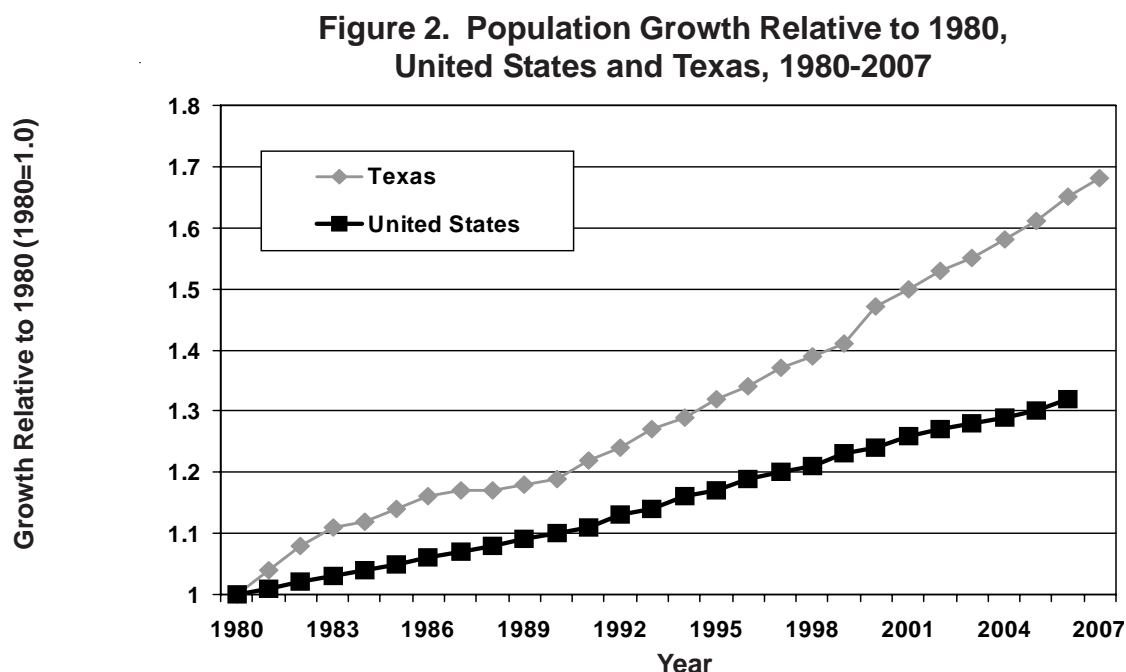


Source: U.S. Bureau of the Census; Office of Management and Budget, June 2003

Produced By: Health Professions Resource Center, Center for Health Statistics,  
Texas Department of State Health Services

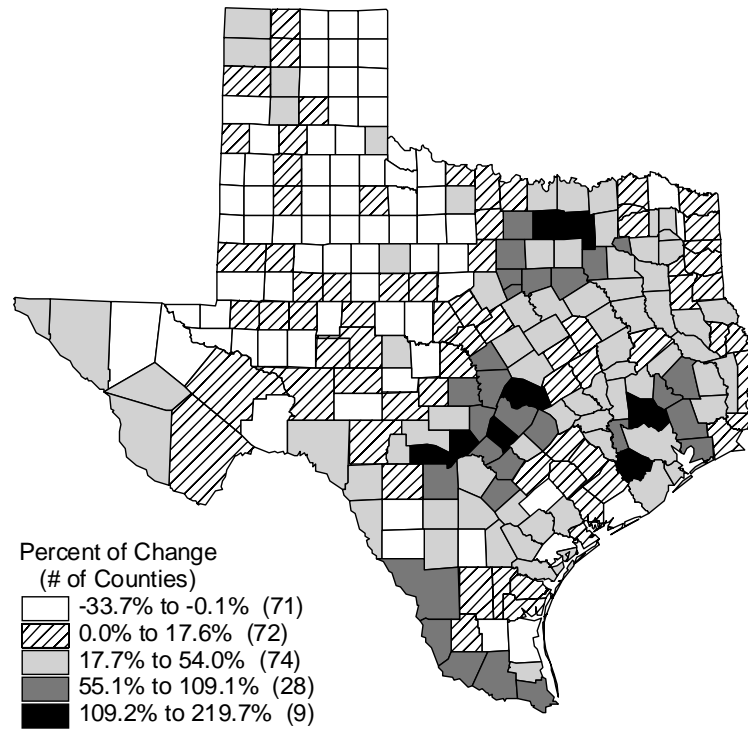
Another factor concerning health care in Texas is the age of the population. In 2007, 9.9% of the Texas population was age 65 and over. The counties with the highest percentages of people age 65 and over were concentrated in the area just west of Central Texas, extending northwest into the eastern Panhandle (Figure 6). Nonmetropolitan counties had a higher percentage of people age 65 and over (15.9%), relative to the total population of the counties, than did metropolitan counties (9.0%); however, 78.9% of the population age 65 and over resides in metropolitan counties. The elderly population has special needs, and their increasing numbers are of concern to health care planners and providers. In 2007, only 31 physicians statewide had a primary specialty in geriatrics (an increase from 28 in 2004), and these were located in only 13 counties; all but one of these counties is metropolitan. An additional 272 physicians listed geriatrics as their secondary specialty. Sixty-eight counties had a physician who listed their primary or secondary specialty as geriatrics, an increase from 38 counties in 2000. Forty-five of these were metropolitan counties. The special needs and co-morbidities of elderly baby boomers will likely generate increased requirements for a variety of specialists such as geriatricians. Rural seniors will be the least likely of the elderly baby boomers to have access to these specialists.

### About the Border Area



Source: U.S Bureau of the Census; Texas State Data Center

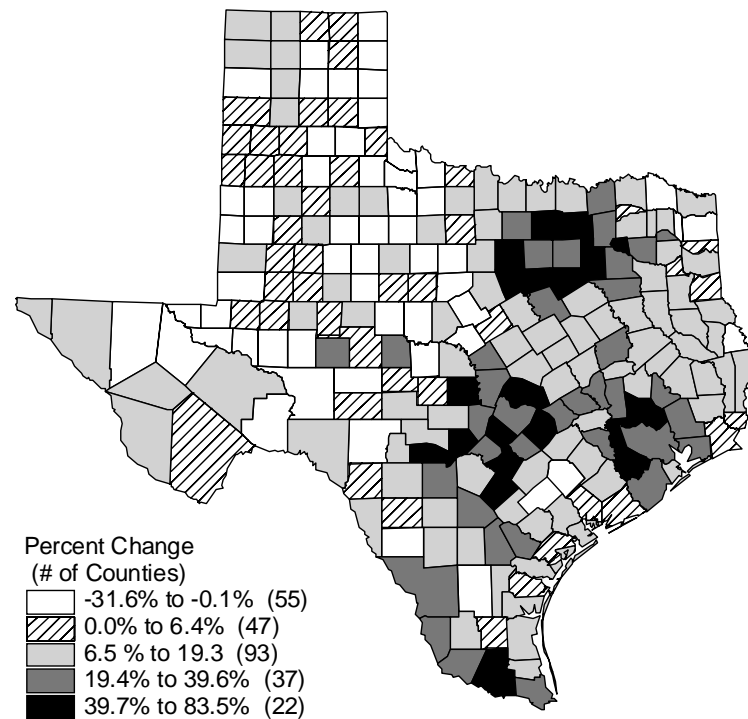
**Figure 3a. Percent Change in Population, 1987-2007, Texas**



Source: Texas State Data Center

Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

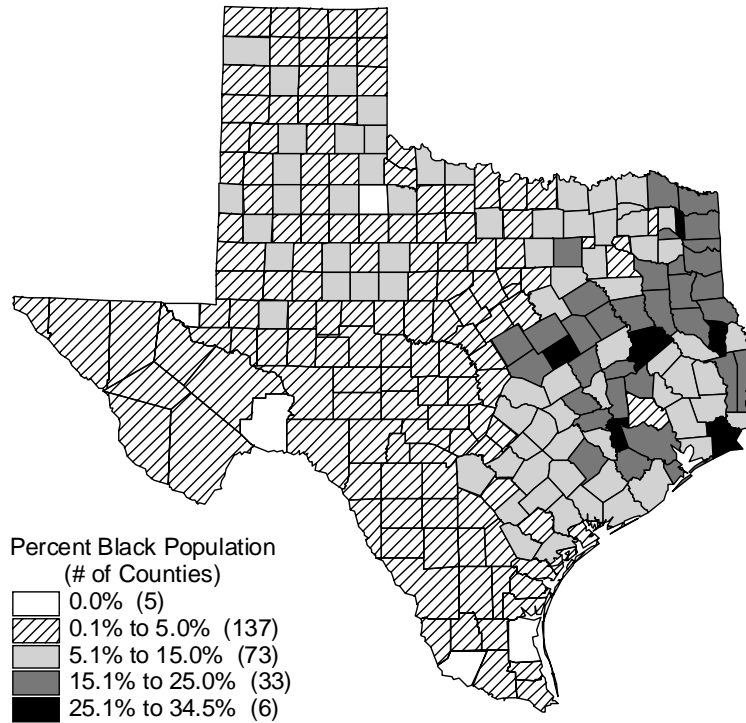
**Figure 3b. Percent Change in Population, 1997-2007, Texas**



Source: Texas State Data Center

Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

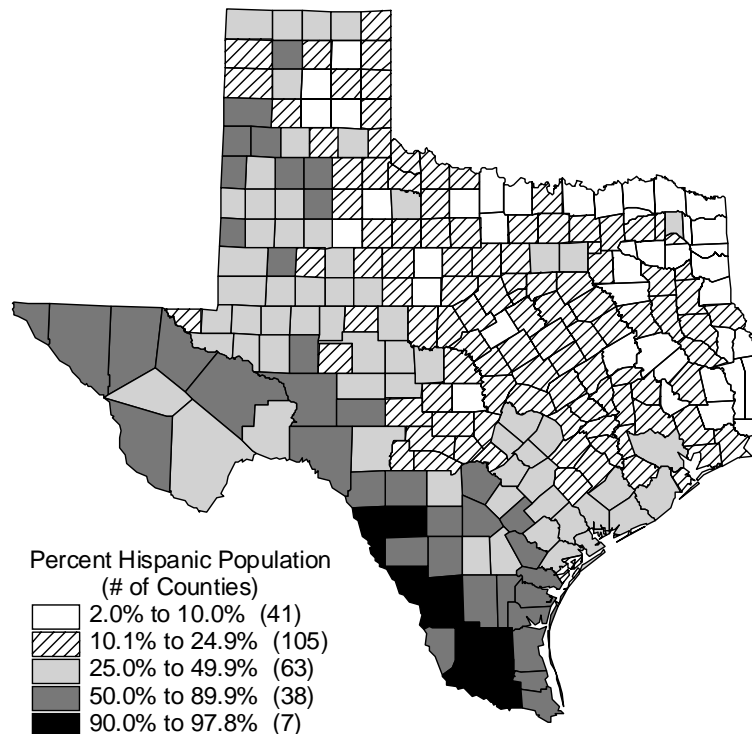
**Figure 4. Percent Black Population, 2007, Texas**



Source: Texas State Data Center

Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

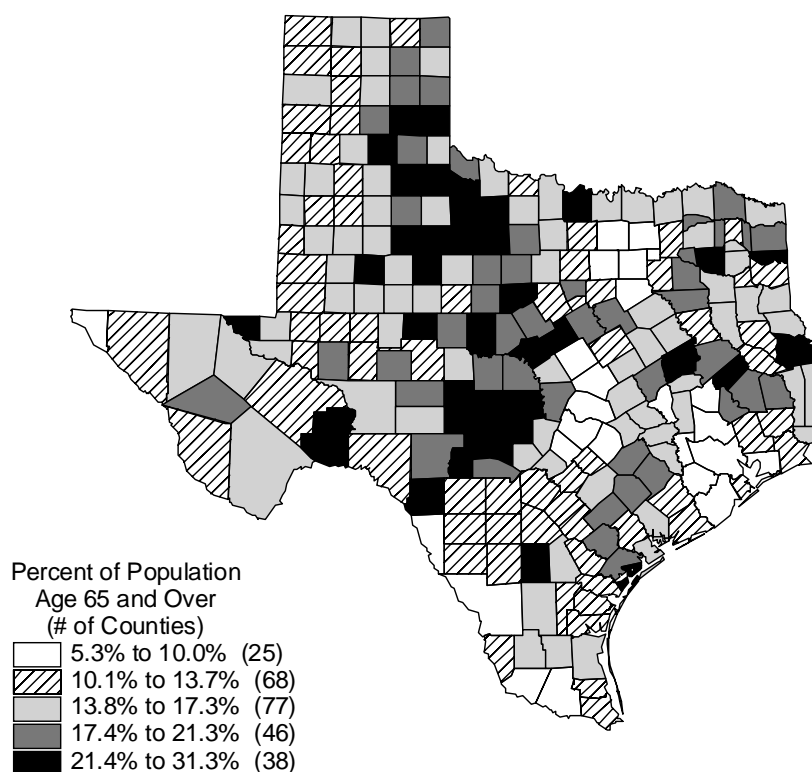
**Figure 5. Percent Hispanic Population, 2007, Texas**



Source: Texas State Data Center

Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

**Figure 6. Percent Population age 65+, 2007, Texas**



Source: Texas State Data Center

Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

Texas shares an approximately 1,240 mile border with Mexico. As a result of this influence, the border area is largely Hispanic. The counties considered border counties in this report are not just those fourteen that are contiguous to Mexico, but 32 counties in the South Texas and West Texas Regions (Figure 7). The 32 border county area is comprised of the following counties: Brewster, Brooks, Cameron, Crockett, Culberson, Dimmit, Duval, Edwards, El Paso, Frio, Hidalgo, Hudspeth, Jeff Davis, Jim Hogg, Kenedy, Kinney, La Salle, McMullen, Maverick, Pecos, Presidio, Real, Reeves, Starr, Sutton, Terrell, Uvalde, Val Verde, Webb, Willacy, Zapata, and Zavala. The identification of these counties as border counties was based on Article 4 of the La Paz Agreement between the United States and Mexico (1983). Previous editions of this report used a 43 county border area, as defined by the 76th Legislature (SB 1378), however, it was decided that the 32 county area was a better measure of the true border conditions, as the 43 county area included counties as far north as Bexar County, which had the effect of significantly increasing the ratios for the metropolitan border counties.

In 2007, the estimated population of the border area was 2,520,164, or 10.5% of the total population of Texas. The border population was 11.1% White, 1.1% Black, 86.6% Hispanic, and 1.1% Asian, Native American, or other race/ethnicities. Only four of the 32 counties were metropolitan, but these four counties had 2,137,487 people, or 84.8% of the population of the border area. Geographically, the vast majority of the border area is nonmetropolitan, and it contains counties with some of the lowest population densities in Texas, especially in West Texas. In 2007, 64 counties in Texas did not have an acute care hospital, and 17 of these were in the border area. 113,296 people - 4.6% of the population of the border area - live in these 17 counties. Access to health care within the border region is of particular concern because Hispanics are among the least insured populations in the state. In 2004, the border area had a higher poverty rate than Texas as a whole, 25.8% compared to 16.2% for Texas; and in 2005, a higher low income population, 55.6% compared

to 35.0% for Texas (poverty data from U.S. Bureau of the Census; low income data from the Texas State Data Center); and, has other unique obstacles to health care access, such as language and cultural barriers. The border area has traditionally had a shortage of health care providers and, in September of 2007, 26 of the 32 border counties had some type of primary care Health Professional Shortage Area designation; and, 25 border counties had some type of dental Health Professional Shortage Area designation.

**Figure 7. Border and Non-Border Counties, Texas**



### About the Data in This Report

Supply data for Texas were collected from the boards listed at the beginning of this report. All reported data represents the licensed health professionals who were actively practicing in Texas. Licensed professionals who were inactive or retired were excluded. The ratios for Texas were calculated using population projections obtained from the Texas State Data Center. U.S. health professions supply data were obtained from the Health Resources Services Administration (HRSA), Bureau of Health Professions (BHP), and some national professional organizations. However, in recent years the BHP has discontinued the collection and dissemination of U.S. data, so U.S. data for recent years are often unavailable. U.S. population data were obtained from the U.S. Bureau of the Census. The definitions of metropolitan and nonmetropolitan counties were obtained from the U.S. Office of Management and Budget.

For both Texas and the U.S., there were some years where supply data were not available. The years for which actual data were used in this report are indicated on the graphs by a data marker. Data for designated Health Professional Shortage Areas were obtained from the Shortage Designation Branch (SDB), Health Resources and Services Administration, U.S. Department of Health and Human Services (DHHS). Square mileage and other geographic Texas facts were obtained from <http://www.texasalmanac.com/>.

The supply ratios for providers in each county for all available years may be found at the following website: <http://www.dshs.state.tx.us/CHS/hprc/>.

## About Health Professional Shortage Areas (HPSAs)

Health Professional Shortage Area (HPSA) designations suggest an inadequacy in the overall supply of health providers and access to health care. The Texas Primary Care Office administers the HPSA program in Texas. Since HPSA designations are federal designations, final determinations of eligibility are made by the Shortage Designation Branch, U.S. DHHS.

There are three types of HPSA designations: primary care, dental, and mental health. The criteria used for designating areas are found on the Health Professions Resource Center's website at <http://www.dshs.state.tx.us/CHS/hprc/hpsa.shtm>. Lists of all the designated areas in Texas can also be obtained at this site. These lists are updated frequently, as new designations are approved. There are a variety of benefits available to providers and facilities in HPSA areas; a list of these benefits can be obtained at <http://www.dshs.state.tx.us/CHS/hprc/benefits.pdf>. Any inquiries related to HPSA information can be directed to the Primary Care Office at 512-458-7518 or Health Professions Resource Center staff, 512-458-7261. Requests for designation should be directed to the Primary Care Office.

There are several categories of HPSA designations: whole county area, geographic sub-county area, or a special population group (such as a low income population group). A facility may also be designated under certain conditions. In this report, when referring to the number of HPSA designations, the facility designations are not included, and the partial county geographic designations and the special population designations are combined.

The first step in determining if an area qualifies as a HPSA is done by calculating the population-to-provider Full Time Equivalency (FTE) ratio. This is determined by dividing the population of the area being considered for designation by the number of FTE providers in the area. An initial list of providers is obtained by the Health Professions Resource Center from the appropriate state boards. Phone surveys to these providers may be conducted to determine an accurate FTE count. If an area meets the ratio needed to qualify, then other factors are considered, such as the supply of providers in contiguous areas, and the distance from the area considered for designation to the providers in surrounding areas.

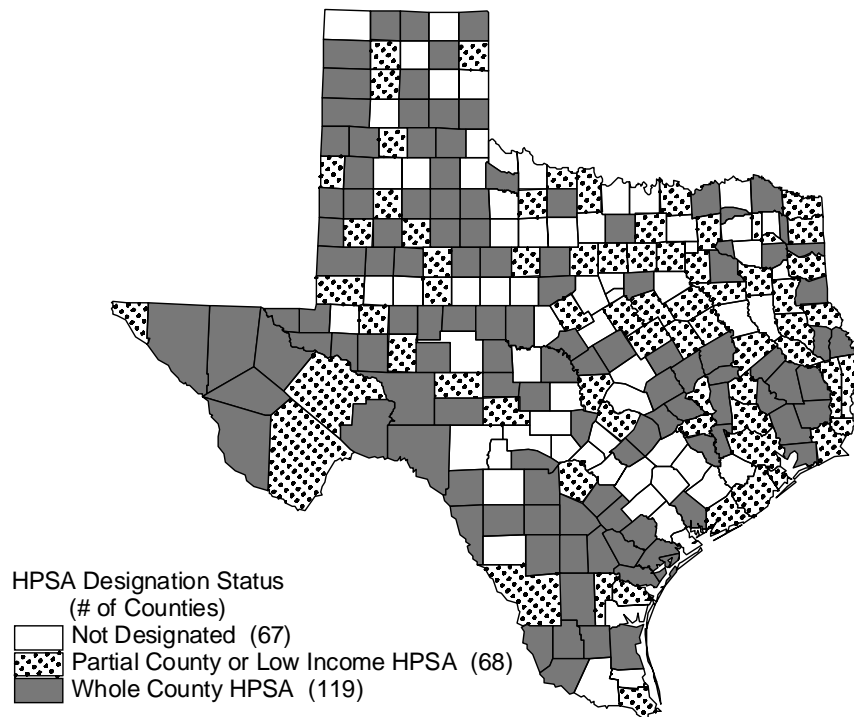
For primary care HPSAs, only non-federal, non-administrative, active, in-state, primary care physicians (non-specialists), who are not residents in training, are included in the count. Other physicians are also excluded, such as those who are fulfilling a J-1 Visa obligation, or those who practice exclusively in prisons, among other practice sites. An area must meet a ratio of 3,500 people per 1 FTE physician to qualify for designation. A ratio of only 3,000:1 is acceptable if the poverty rate of an area is 20% or greater. In September of 2007, there were 119 counties in Texas designated as whole county primary care HPSAs, and 68 counties designated as partial county or low income primary care HPSAs, including those proposed for withdrawal (Figure 8).

For dental HPSAs, only dentists who practice in dental public health, general dentistry, or pediatric dentistry, and those who are non-federal, non-administrative, active dentists, are included in the count. Under certain conditions, other dentists may be excluded, such as those who practice exclusively in prisons, among others. To qualify, an area must meet a ratio of 5,000:1, or 4,000:1 if the poverty rate is 20% or greater. A dentist's age and the number of auxiliaries (dental assistants and dental hygienists) in the dentist's practice are also factors in the FTE calculation. In September of 2007, there were 82 counties in Texas designated as whole county dental HPSAs, and 28 counties designated as partial county or low income dental HPSAs, including those proposed for withdrawal (Figure 9).

For mental health HPSAs, only psychiatrists who are active, non-federal, and non-administrative, are included in the FTE count. Other psychiatrists are excluded, such as those who are fulfilling a J-1 Visa waiver obligation, or those who practice exclusively in prisons or state mental institutions, among others. To qualify, an area must meet a ratio of 30,000:1, or 20,000:1 if the poverty rate is 20% or greater. In August of 2007, 185 counties in Texas were designated as whole county mental health HPSAs, and four counties had a partial county or low income mental health HPSA designation.



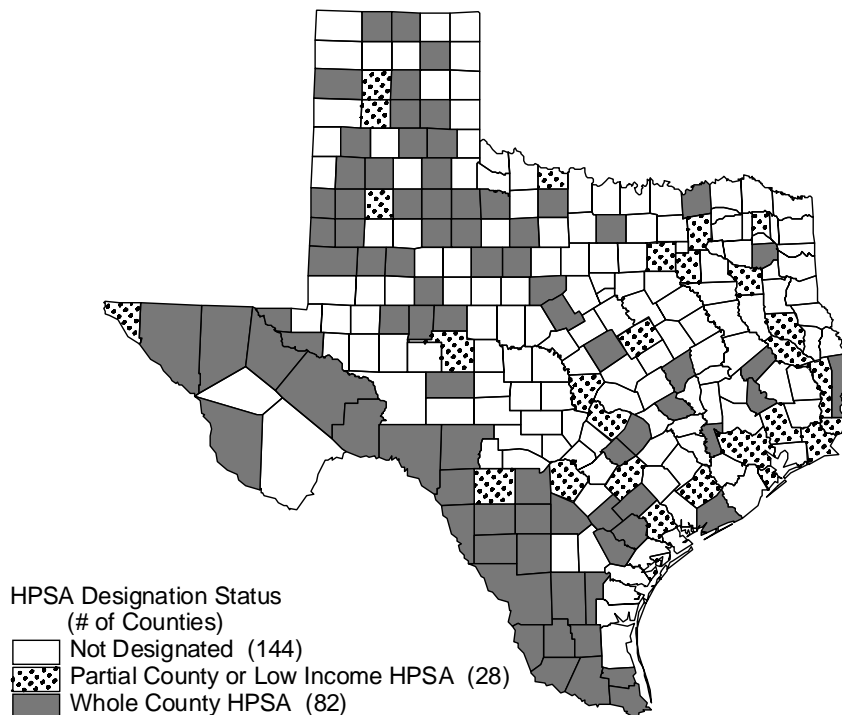
**Figure 8. Primary Care Health Professional Shortage Areas (HPSAs), Texas as of 9/19/2007**



Source: U.S. DHHS, Shortage Designation Branch

Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

**Figure 9. Dental Health Professional Shortage Areas (HPSAs), Texas as of 9/19/2007**



Source: U.S. DHHS, Shortage Designation Branch

Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services



## **About the Health Professions Resource Center (HPRC)**

On September 1, 1989, the Omnibus Rural Health Care Rescue Act established the HPRC within the Department of State Health Services. On September 1, 1997, the HPRC was transferred to the governance of the Statewide Health Coordinating Council (SHCC). Administrative oversight is provided by the Texas Department of State Health Services (DSHS), Center for Health Statistics.

HPRC collects licensing data for 52 health provider groups from state licensing boards. Using these data, HPRC analyzes the supply and distribution of health professionals in Texas. The data are aggregated and reports are prepared and posted on the HPRC website. HPRC also conducts health care workforce studies and prepares numerous reports, particularly the Highlights series, a collection of reports focusing on the details of specific health profession. HPRC also designates health care delivery sites where mid-level providers can practice limited prescriptive authority (Site-MUP Program), and collaborates to provide a clearinghouse program for primary care providers seeking collaborative practice opportunities. More information on these programs is available on the HPRC website.

Also available on the HPRC website are supply totals, by county, for the professions for which HPRC collects data; trend information on the supply of various health professionals; lists of federally designated Health Professional Shortage Areas (HPSAs) and Medically Underserved Areas (MUAs) in Texas; criteria for HPSA or MUA designations; list of benefits associated with HPSA or MUA designations; and links to the health professions licensing boards and other useful websites, including HOTJOBS, which is a guide for healthcare career opportunities in Texas (<http://www.texashotjobs.org/>).

For HPRC contact information, see page v.

## **About the East Texas Area Health Education Center**

The East Texas Area Health Education Center (ETAHEC) is based at the University of Texas Medical Branch at Galveston. This AHEC, one of three programs in Texas, maintains nine regional operations covering 111 counties of Central and East Texas. The ETAHEC, as part of a national network of AHEC centers, focuses on health workforce development and support activities, health literacy, and community health systems support efforts. Staff in its nine regional offices work with schools' teachers, advisors, and counselors to promote health careers for students; support placements of health professions students in community-based learning experiences; and provide practice entry and support activities intended to recruit and retain health professionals in practice sites needed by communities. Extensive programs address health literacy needs of citizens, and target a wide range of information needs for wellness, prevention of illness and injury, and chronic disease management. ETAHEC efforts include work with community leadership to help evaluate and re-design local health delivery systems.



# MEDICAL PROFESSIONS

## **MEDICAL PROFESSIONS**

Direct Patient Care (DPC) Physicians .....	15
Primary Care (PC) Physicians .....	18
Physician Assistants .....	21
Chiropractors .....	24
Podiatrists .....	27

# Direct Patient Care Physicians

A Direct Patient Care (DPC) physician is a licensed health care professional who diagnoses, treats, operates on, or prescribes medicine for any patient with disease, pain, injury, deformity, or physical condition. DPC physicians are those who spend at least 50% of their time in the direct care of patients. The term excludes those physicians who work primarily as medical teachers, administrators or researchers, although there are some analysts who think these physicians should also be included in the total DPC physician workforce since many provide limited patient care services. The DPC physician statistics in this report also exclude those physicians who are federal physicians; practice in the military, Veteran's Administration, or Public Health Service; and, those who are fellows or residents in training. These criteria are also used when counting primary care physicians for the purpose of determining if an area qualifies as a U.S. DHHS Health Professional Shortage Area (HPSA).

Over the years, Texas has lagged behind the U.S. in its ratio of DPC physicians and the gap between the two has been increasing (Figure 10). Texas has made gains in physician supply since 1997 in both metropolitan and nonmetropolitan counties after remaining fairly constant between 1981 and 1996, although the ratios dropped off slightly in 2004 (Figure 12). Nonmetropolitan counties in Texas still tend to have much smaller supply ratios than do metropolitan counties. In 2007, there were 25 counties with no DPC physicians (Table 1). One hundred and four counties demonstrated a decrease in the ratio of DPC physicians-to-population between 1998 and 2007 (Figure 13). Sixty-five counties had a decrease in the actual number of DPC physicians (Table 1). One hundred and thirty three counties experienced an increase in ratios, including four counties that did not have a DPC physician in 1998 but had at least one in 2007 (Figure 13). Most of the 32 border counties, including the border metropolitan counties, had low DPC physician-to-population ratios. In general, the counties with the highest concentrations of DPC physicians are those in Central or East Texas. The counties with lower concentrations are generally located in West Texas, South Texas, and the Panhandle.

**Table 1: Summary Statistics for DPC Physicians in Texas**

## DPC Physicians per 100,000 Population

1981:	126.4	18,636
1988:	129.4	21,568
1998:	146.5	28,778
2007:	156.7	37,177

## Total DPC Physicians

### 2007 DPC Physicians Facts:

Race/Ethnicity	Gender	Median Age
White 66.0%	Male 75.2%	51
Black 4.6%	Female 24.8%	44
Hispanic 11.5%		
Other 17.9%		

### Number of DPC Physicians per 100,000 Population in 2007

Metropolitan Border Areas:	145.2
Nonmetropolitan Border Areas:	70.7
Metropolitan non-Border Areas:	170.7
Nonmetropolitan non-Border Areas:	88.7

For the 119 counties designated as whole county HPSAs\*: 42.5  
 For the 68 counties designated as partial county or special population HPSAs\*: 179.2  
 For the 67 counties not designated as HPSAs\*: 129.4

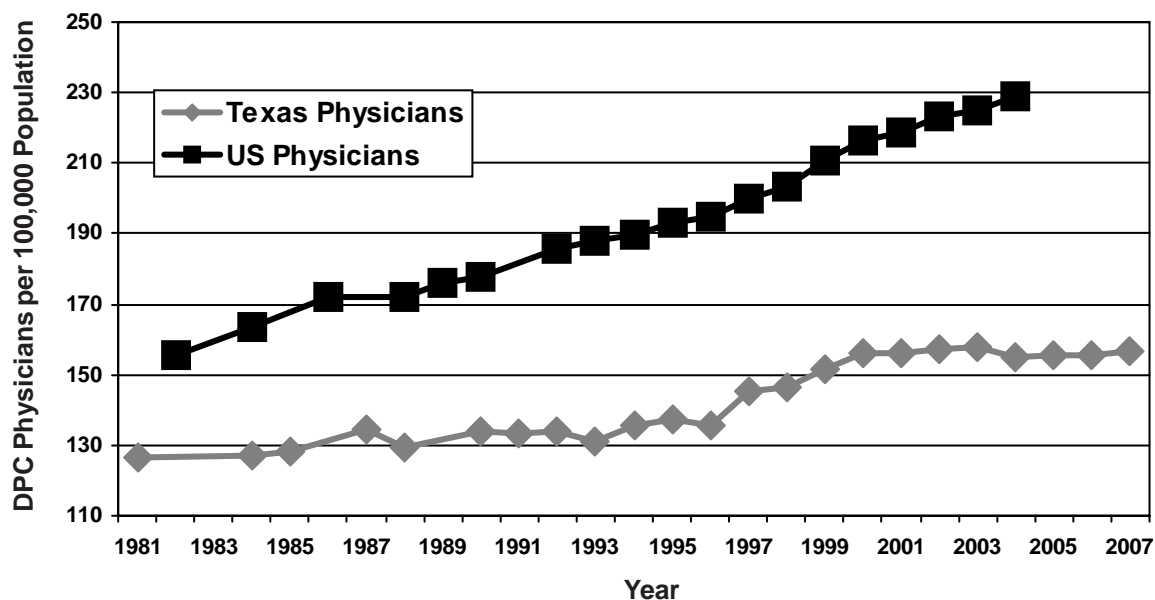
### County Level Data

# of counties with an increase in number of DPC physicians 1998-2007:	140
# of counties with a decrease in number of DPC physicians 1998-2007:	65
# of counties with no DPC physicians in 2007:	25

\*Health Professional Shortage Areas

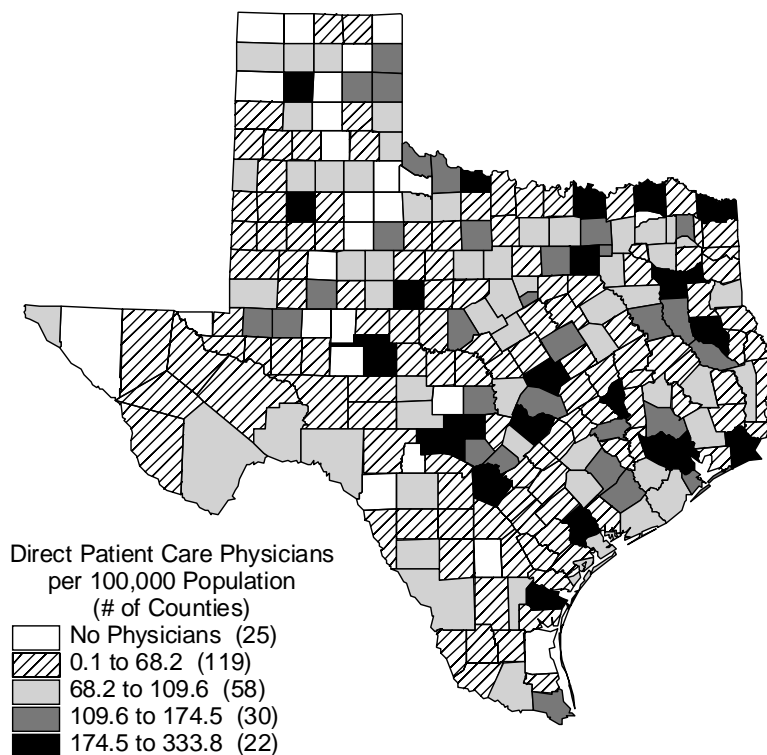
# DPC Physicians

**Figure 10. DPC Physicians per 100,000 Population, U.S. and Texas, 1981 to 2007**



Source: Texas Medical Board; HRSA, Bureau of Health Professions  
 Figures include all licensed, active, in-state, non-federal, non-resident in training physicians

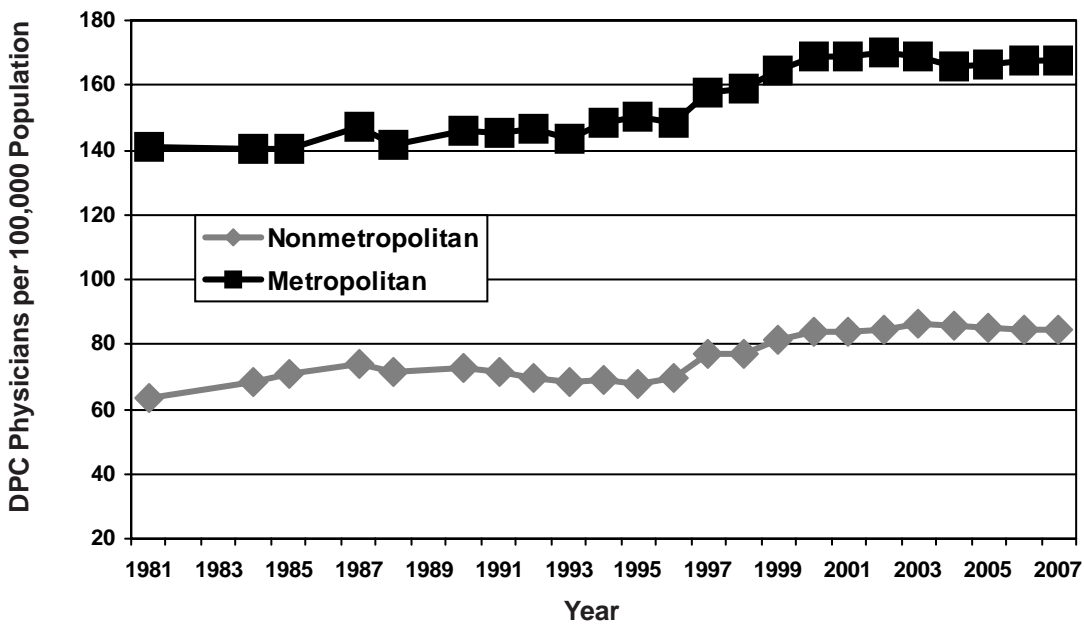
**Figure 11. DPC Physicians per 100,000 Population, Texas, 2007**



Source: Texas Medical Board  
 Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

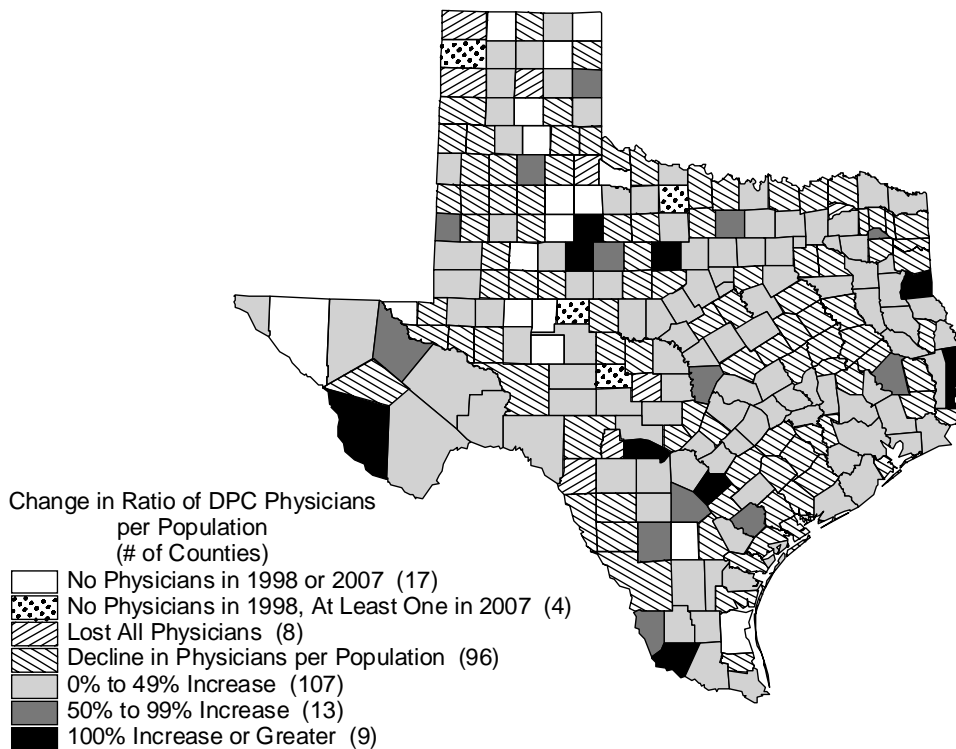
# DPC Physicians

**Figure 12. DPC Physicians per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1981 to 2007**



Source: Texas Medical Board  
 Source for Metropolitan-Nonmetropolitan definition: Office of Management and Budget  
 Figures include all licensed, active, in-state, non-federal, non-resident in training physicians

**Figure 13. Percent Change in Ratio of DPC Physicians per 100,000 Population from 1998 to 2007**



Source: Texas Medical Board  
 Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

# Primary Care Physicians

A Primary Care (PC) physician is a health professional who diagnoses, treats, operates on, or prescribes medicine for patients with disease, pain, injury, deformity, or other physical conditions. PC physicians see patients with the most common medical problems and often coordinate the care of their patients and their patients' families. In this report, PC physicians are a subset of DPC physicians. They are also non-federal, non-resident, and non-administrative; and, they practice in one of five specialties: family practice/medicine, general practice, general internal medicine, obstetrics and/or gynecology, general pediatrics, and geriatrics\*.

The PC physician-to-population ratio is the primary indicator used by the U.S. DHHS to determine if an area qualifies as a Health Professional Shortage Area (HPSA). In September of 2007, there were 119 counties in Texas designated as whole county primary care HPSAs. Approximately 9% of the population of Texas resided in these counties. There were 18 additional counties with partial county HPSA designations (excluding low income HPSAs and including those proposed for withdrawal), covering about 11% of the population. 42 additional counties have designations for the low income population.

As with DPC physicians, Texas lags the U.S. in the ratio of PC physicians-to-population, although the gap between Texas and the U.S. has been decreasing slightly in the last few years (Figure 14). Texas has made gains in physician ratios in both metropolitan and nonmetropolitan counties (Figure 16). However, the nonmetropolitan county ratios continue to be much smaller than ratios in the metropolitan counties. In 2007, there were 27 counties with no PC physicians (Table 2). One hundred and six counties have shown a decrease in PC physician ratios between 1998 and 2007 (Figure 17); however, only 63 counties had a decrease in the number of PC physicians (Table 2). One hundred and thirty counties experienced an increase in ratios, including five counties that did not have a PC physician in 1998 but had at least one in 2007 (Figure 17). Most of the 32 border counties, including the border metropolitan counties, have low PC physician ratios. In general, the counties with the highest concentrations of PC physicians are those in Central or Eastern Texas. Counties with lower concentrations are located in West Texas, South Texas, and the Panhandle.

\*Texas started including Geriatrics as a primary care profession in 2004.

**Table 2: Summary Statistics for Primary Care Physicians in Texas**

## PC Physicians per 100,000 Population

1981:	53.5	7,883
1988:	59.3	9,892
1998:	65.0	12,776
2007:	67.9	16,120

## Total PC Physicians

### 2007 PC Physicians Facts:

Race/Ethnicity	Gender	Median Age
White 59.4%	Male 66.1%	48
Black 6.2%	Female 33.9%	42
Hispanic 14.2%		
Other 20.2%		

### Number of PC Physicians per 100,000 Population in 2007

Metropolitan Border Areas:	53.3
Nonmetropolitan Border Areas:	36.1
Metropolitan non-Border Areas:	72.2
Nonmetropolitan non-Border Areas:	54.5

For the 119 counties designated as whole county HPSAs\*: 31.4

For the 68 counties designated as partial county or special population HPSAs\*: 73.2

For the 67 counties not designated as HPSAs\*: 65.8

### County Level Data

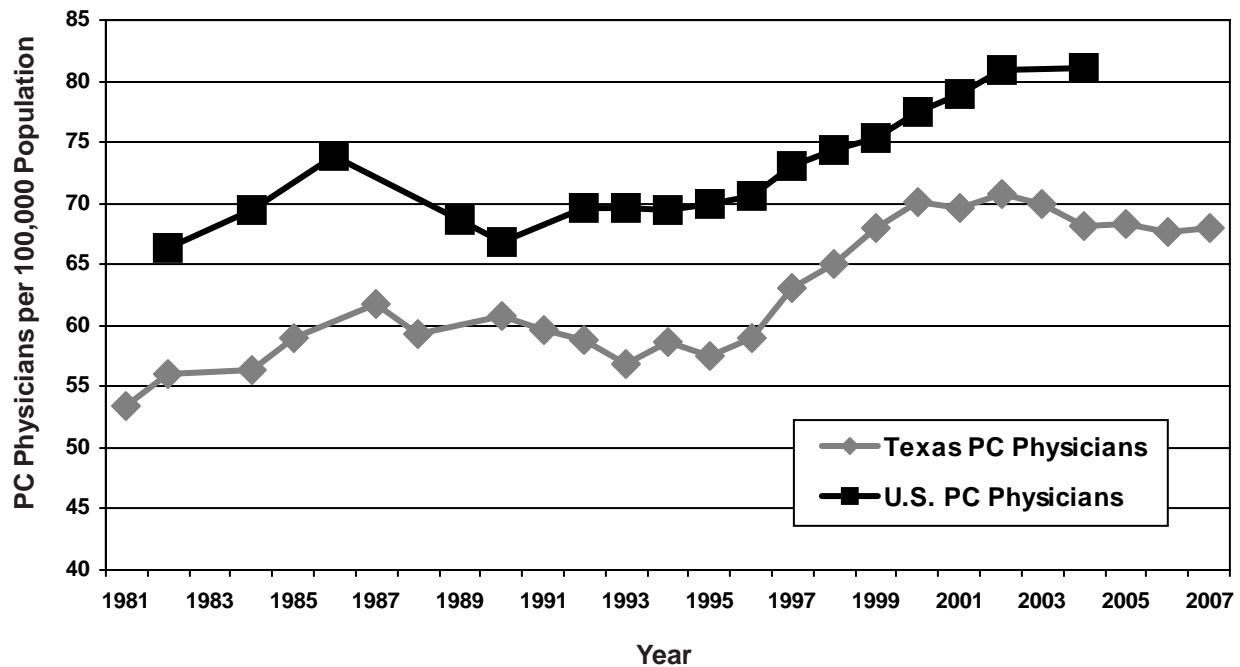
# of counties with an increase in number of PC physicians 1998-2007:	139
# of counties with a decrease in number of PC physicians 1998-2007:	63
# of counties with no PC physicians in 2007:	27

\*Health Professional Shortage Areas



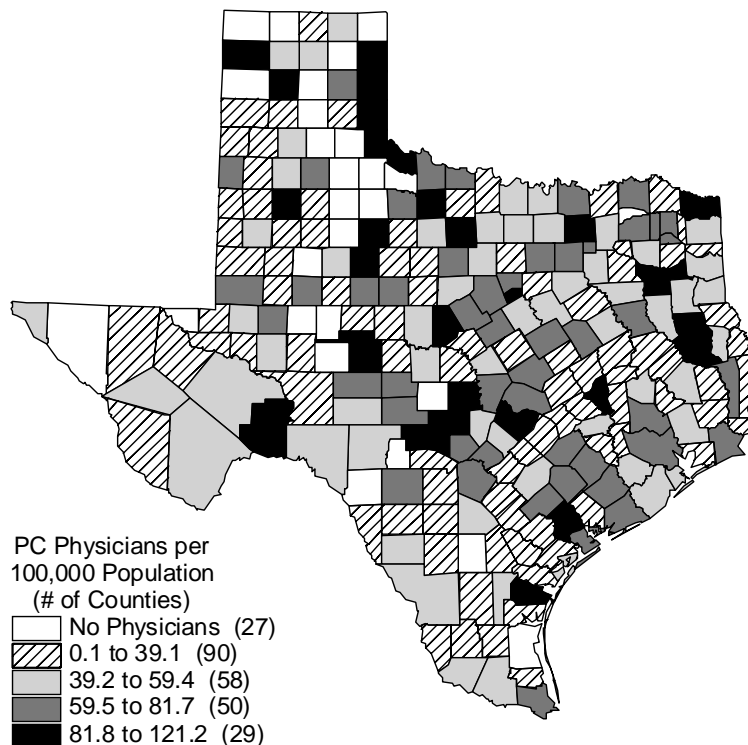
# PC Physicians

**Figure 14. PC Physicians per 100,000 Population, U.S. and Texas, 1981 to 2007**



Source: Texas Medical Board; HRSA, Bureau of Health Professions  
 Figures include all licensed, active, in-state, non-federal, non-resident in training physicians

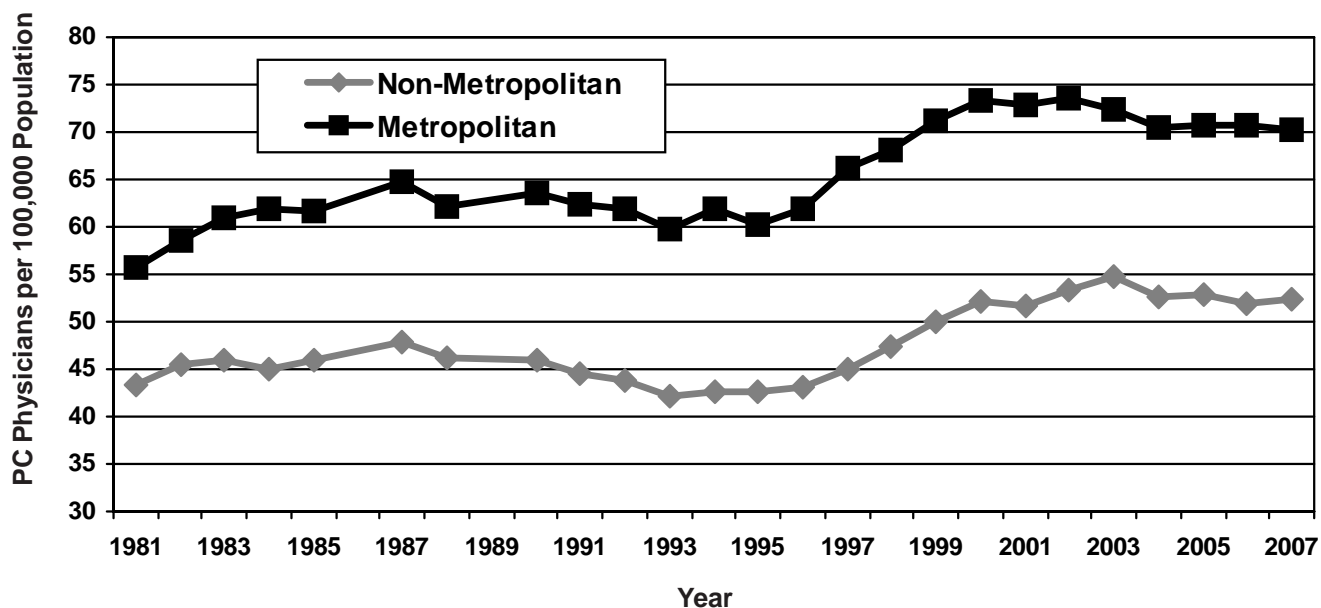
**Figure 15. PC Physicians per 100,000 Population, Texas, 2007**



Source: TexasMedical Board  
 Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

# PC Physicians

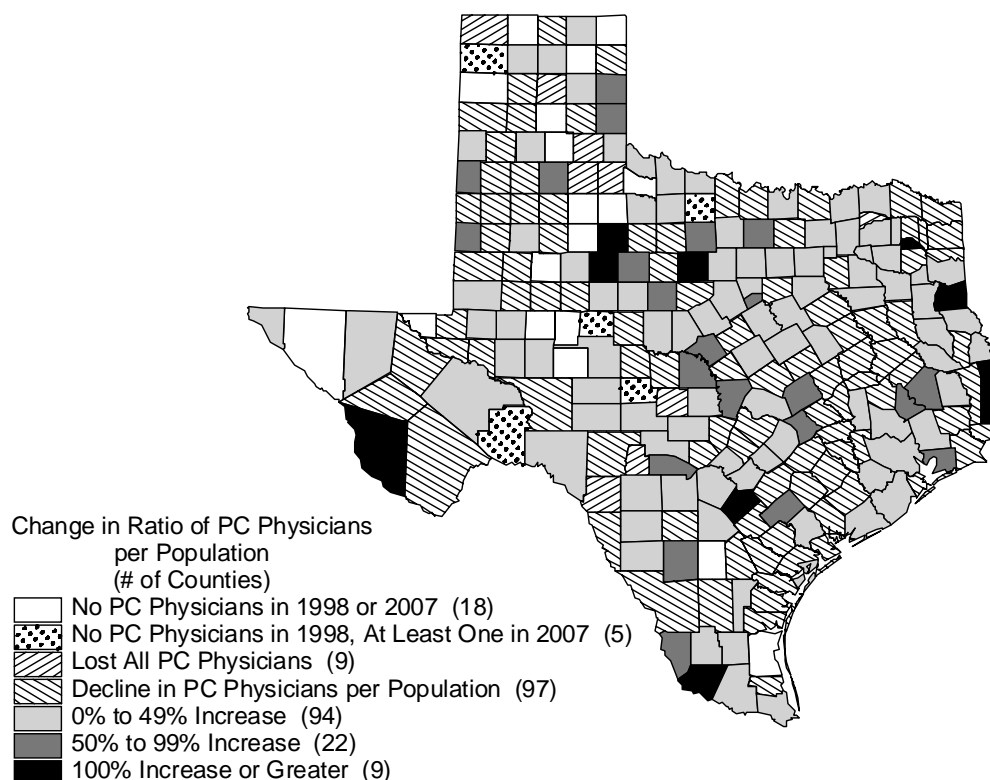
**Figure 16. PC Physicians per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1981 to 2007**



Source: TexasMedical Board

Figures include all licensed, active, in-state, non-federal, non-resident in training primary care physicians

**Figure 17. Percent Change in Ratio of PC Physicians per 100,000 Population from 1998 to 2007**



Source: Texas Medical Board

Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

# Physician Assistants

A Physician Assistant (PA) is authorized to write prescriptions, dispense drugs, and order medications, tests and treatments in hospitals, clinics, nursing homes and other health facilities. PA programs were developed in the 1960s as a way to make use of the skills learned by non-physician military medical personnel and to reduce the burden on physicians in hospitals. Their potential for improving access to primary care became apparent early on and, over time, states began to license them to allow a broader scope of practice.

Currently, PAs are licensed in all 50 states, the District of Columbia, Guam, and the federal services. The PA-to-population ratios for the U.S. have consistently been higher than the ratios for Texas, but both ratios have been rising at a comparable rate (Figure 18). The ratios for the nonmetropolitan areas have traditionally been higher than those for the metropolitan areas since 1994; however, the metropolitan areas have sustained a steady increase - surpassing the nonmetropolitan ratios in 2003 - while the ratios for the nonmetropolitan areas have fluctuated (Figure 20). Thirty-five counties that did not have a PA in 1998 had at least one in 2007 (Figure 21). These counties were distributed throughout Texas, but most of them were in West Texas and the Panhandle.

In 2007, most of the counties with the highest PA-to-population ratios were in West Texas and the Panhandle. There were 62 counties with no PAs (Table 3); most of these were also in West Texas and the Panhandle (Figure 19). Over the last decade, most of the counties with the greatest increase in PA-to-population ratios have been in East and Central Texas, with a few counties in South Texas and the Panhandle (Figure 21). Fifty-six counties have experienced a decrease in their PA-to-population ratios during that time, and another 23 counties lost all of their PAs. One hundred and one counties experienced an increase in their ratios during that time. In contrast with physician ratios, the average ratios in the border and non-border areas were similar (Table 3).

The PA profession is also a prime example of “workforce feminization” - the increase in the number of female workers in the workforce. Although in the past the majority of PAs were male, the number of females surpassed the number of males in 2002; the percentage of female PAs has risen from 47% in 1998 to 57% in 2007. More information on the feminization of the workforce can be found in the report The Feminization of the Health Care Workforce: Implications for Texas, available on the HPRC website at: <http://www.dshs.state.tx.us/CHS/hprc/publicat.shtm>.

**Table 3: Summary Statistics for Physician Assistants in Texas**

## PA's per 100,000 Population

	PA's per 100,000 Population	Total PAs
1989:	3.2	534
1995:	5.6	1,052
2000:	10.4	2,106
2007:	16.3	3,862

## Total PAs

### 2007 Physician Assistants Facts:

Race/Ethnicity	Gender	Median Age
White 74.5%	Male 43.0%	46
Black 5.6%	Female 57.0%	36
Hispanic 13.5%		
Other 6.5%		

## Number of PAs per 100,000 Population in 2007

Metropolitan Border Areas:	13.3
Nonmetropolitan Border Areas:	15.2
Metropolitan non-Border Areas:	17.1
Nonmetropolitan non-Border Areas:	13.0

For the 119 counties designated as whole county HPSAs\*: 10.8

For the 68 counties designated as partial county or special population HPSAs\*: 17.4

For the 67 counties not designated as HPSAs\*: 14.7

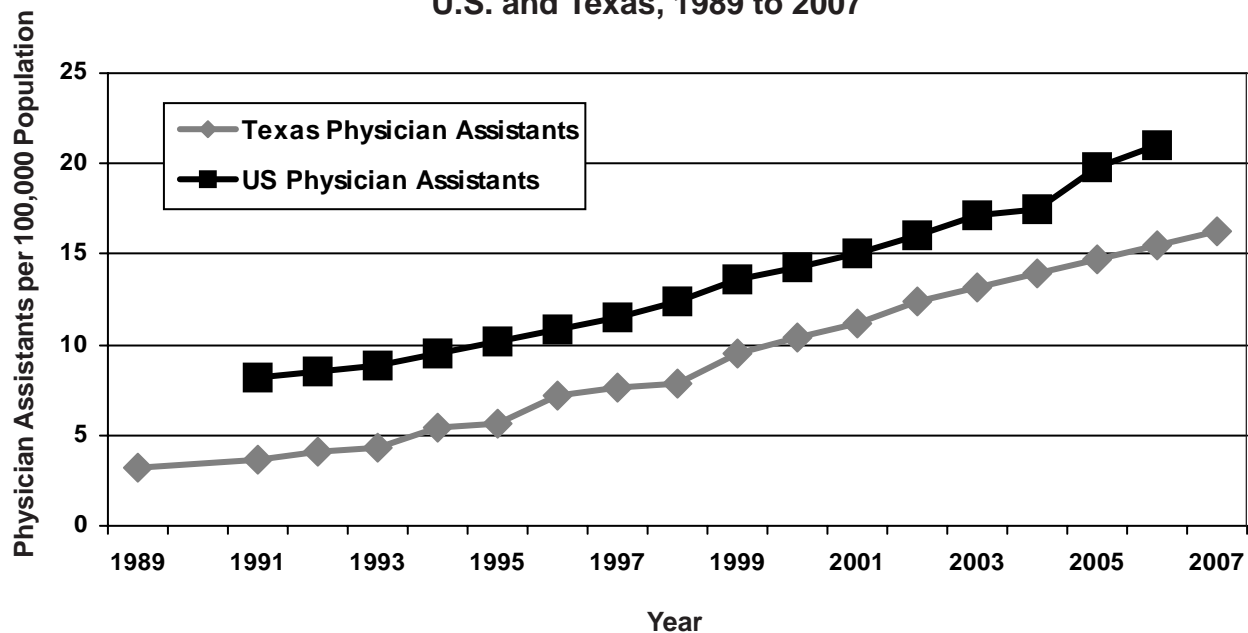
## County Level Data

# of counties with an increase in number of PAs 1998-2007:	131
# of counties with a decrease in number of PAs 1998-2007:	52
# of counties with no PAs in 2007:	62

\*Health Professional Shortage Areas

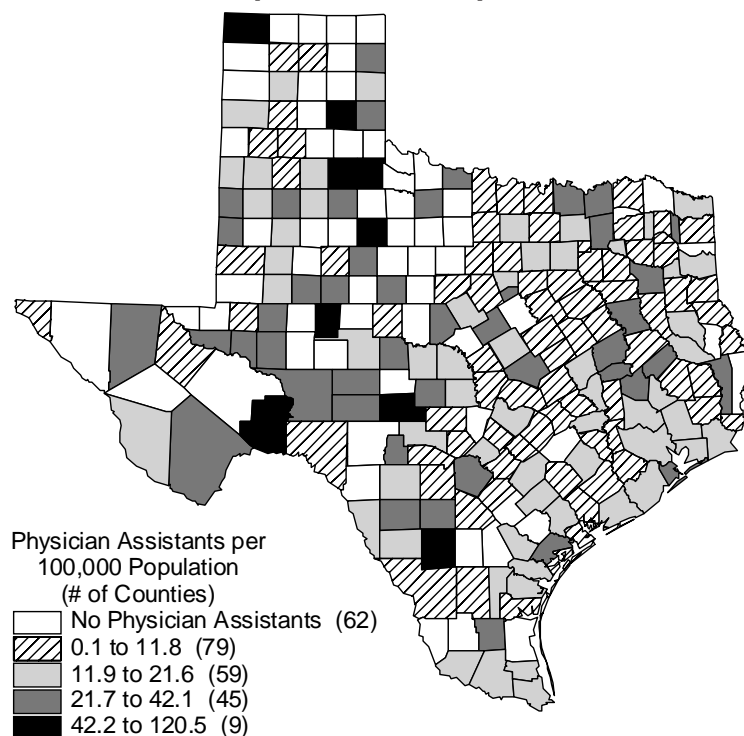
# Physician Assistants

**Figure 18. Physician Assistants per 100,000 Population, U.S. and Texas, 1989 to 2007**



Source: Texas Medical Board; American Academy of Physician Assistants  
Figures include all licensed, active, in-state physician assistants

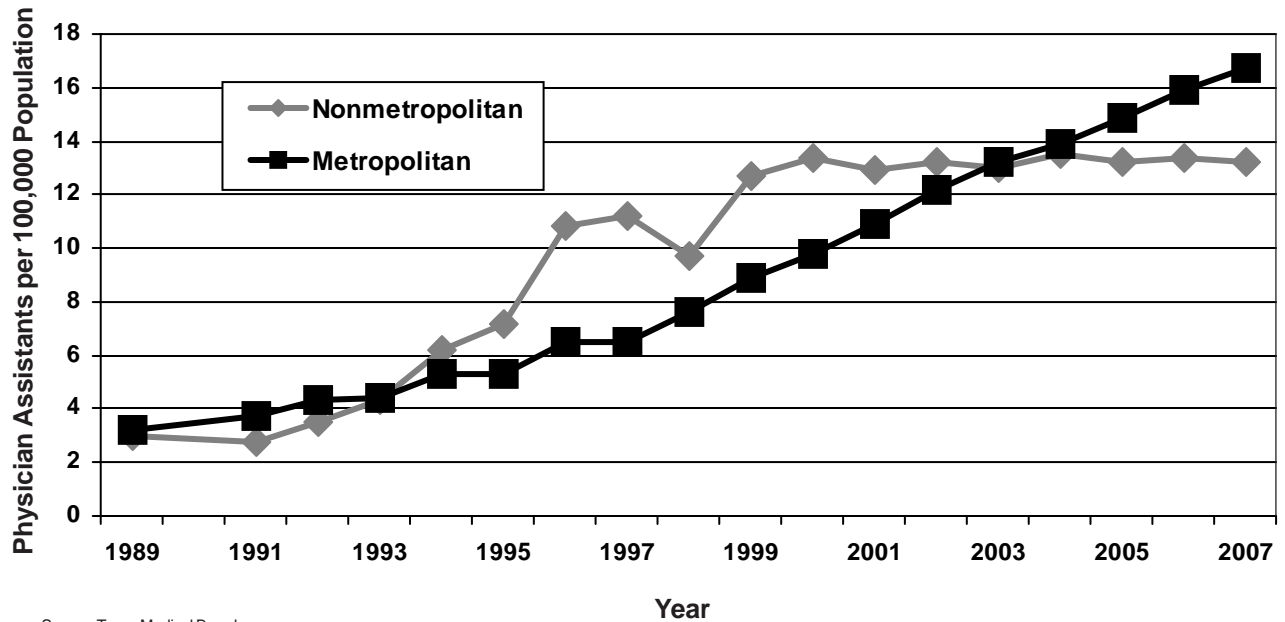
**Figure 19. Physician Assistants per 100,000 Population, Texas, 2007**



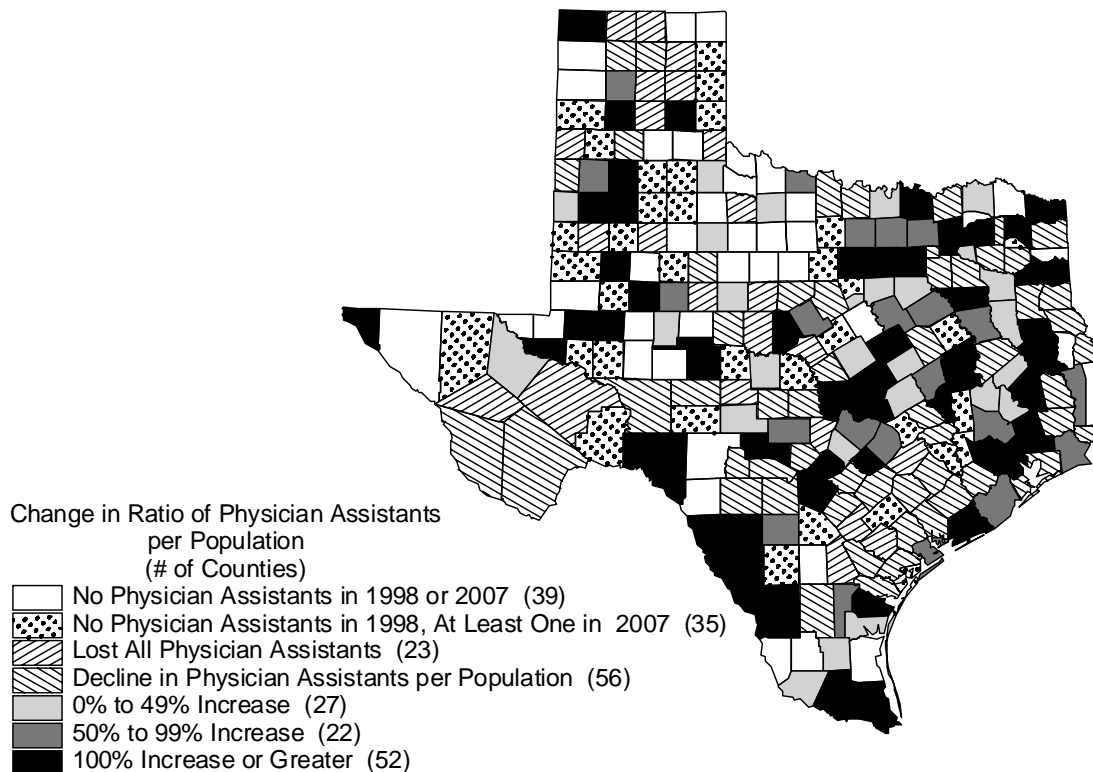
Source: Texas Medical Board  
Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

# Physician Assistants

**Figure 20. Physician Assistants per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1989 to 2007**



**Figure 21. Percent Change in Ratio of Physician Assistants per 100,000 Population from 1998 to 2007**



Source: Texas Medical Board  
Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

# Chiropractors

A chiropractor is a health care professional who treats many conditions of the spine, emphasizing the dependency of health on the correct functioning of the central nervous system. Chiropractors adjust the vertebrae (bones of the spinal column) and other joints of the body to restore correct functioning of the central nervous system to prevent disease, correct abnormalities, and ease irritation to nerves. Other possible treatments used by chiropractors include, but are not limited to, herbal remedies, physiotherapy such as heat and cold treatments, traction, exercise, massage, and ultrasound. Chiropractors care for patients suffering from a wide variety of symptoms if their causes relate to the spine, such as headaches; numbness; back, shoulder, neck, chest, rib, arm, and leg pain; abnormal curvature of the spine; muscle spasms; dizziness; and even some stress, asthma, and allergy disorders. The treatments and procedures that chiropractors are allowed to perform vary from state to state. In Texas, chiropractors do not write prescriptions, or perform surgery or other inciseive procedures.

The ratio of chiropractors-to-population in the US has consistently exceeded that of Texas (Figure 22). Prior to the late 1980's, the ratio was higher in nonmetropolitan counties than in metropolitan counties. Since that time, the ratios for metropolitan counties have greatly increased and exceeded the rate for nonmetropolitan counties (Figure 24). In 2007, there were 76 counties in the state that did not have a chiropractor; most of these were in South Texas, West Texas, and the Panhandle (Table 4). Thirteen counties that did not have a chiropractor in 1999 had at least one in 2007 (Figure 25). From 1999 to 2007, 76 counties experienced a decrease in ratios and 115 had an increase in ratios. The highest ratios in 2007 were concentrated in the central part of the state, and also around the metropolitan areas of Dallas and Houston, although a few counties in the Panhandle also had high ratios (Figure 23). Most of the growth in the supply of chiropractors - in relation to the population - has occurred in the metropolitan areas in the central and eastern parts of the state, with declines in the nonmetropolitan areas in those same parts (Figure 25). The general trend appears to be a shift of chiropractors from the nonmetropolitan areas to the metropolitan areas.

**Table 4: Summary Statistics for Chiropractors in Texas**

Chiropractors per 100,000 Population		Total Chiropractors	<u>2007 Chiropractors Facts:</u>			
			Race/Ethnicity	Gender	Median Age	
1980	6.5	932	not available	Male	76.9%	43
1986:	9.7	1,613		Female	23.1%	39
1999:	15.6	3,124				
2007:	18.6	4,424				

## Number of Chiropractors per 100,000 Population in 2007

Metropolitan Border Areas:	8.4
Nonmetropolitan Border Areas:	4.2
Metropolitan non-Border Areas:	20.9
Nonmetropolitan non-Border Areas:	13.0

For the 130 counties designated as whole county HPSAs\*: 9.6

For the 64 counties designated as partial county or special population HPSAs\*: 19.8

For the 60 counties not designated as HPSAs\*: 18.7

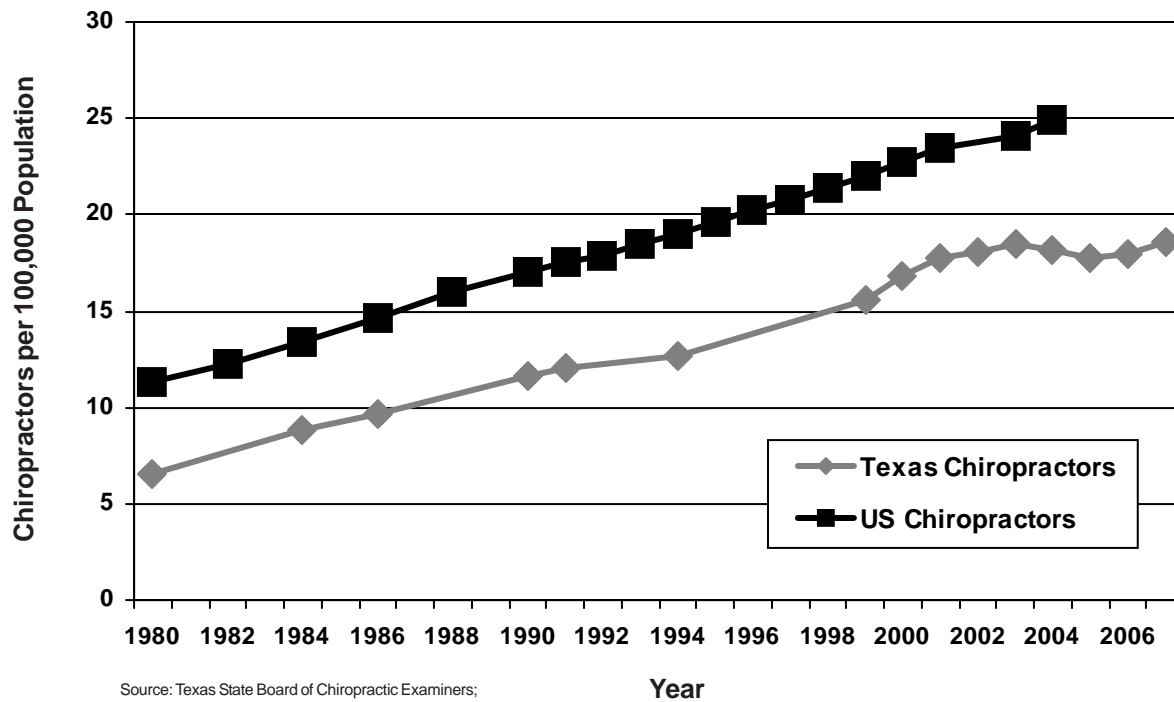
## County Level Data

# of counties with an increase in number of chiropractors 1999-2007:	109
# of counties with a decrease in number of chiropractors 1999-2007:	35
# of counties with no chiropractors in 2007:	76

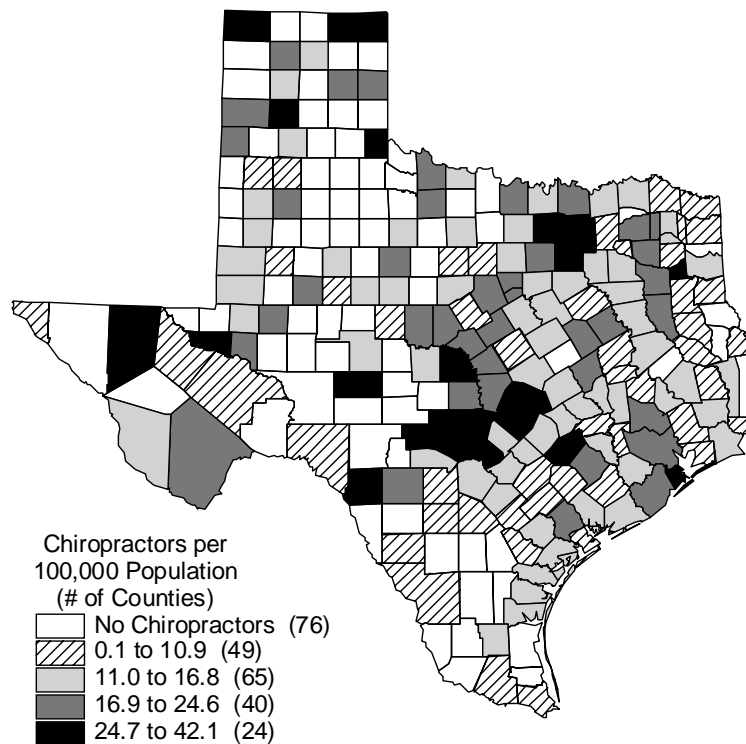
\*Health Professional Shortage Areas

# Chiropractors

**Figure 22. Chiropractors per 100,000 Population, U.S. and Texas, 1980-2007**



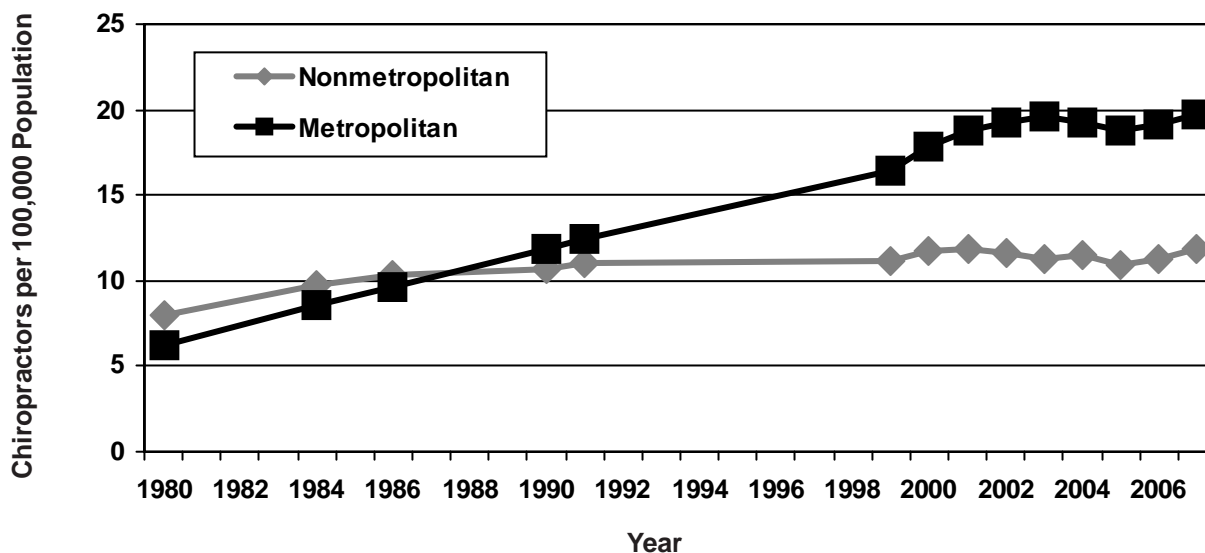
**Figure 23. Chiropractors per 100,000 Population, Texas, 2007**



Source: Texas State Board of Chiropractic Examiners  
Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

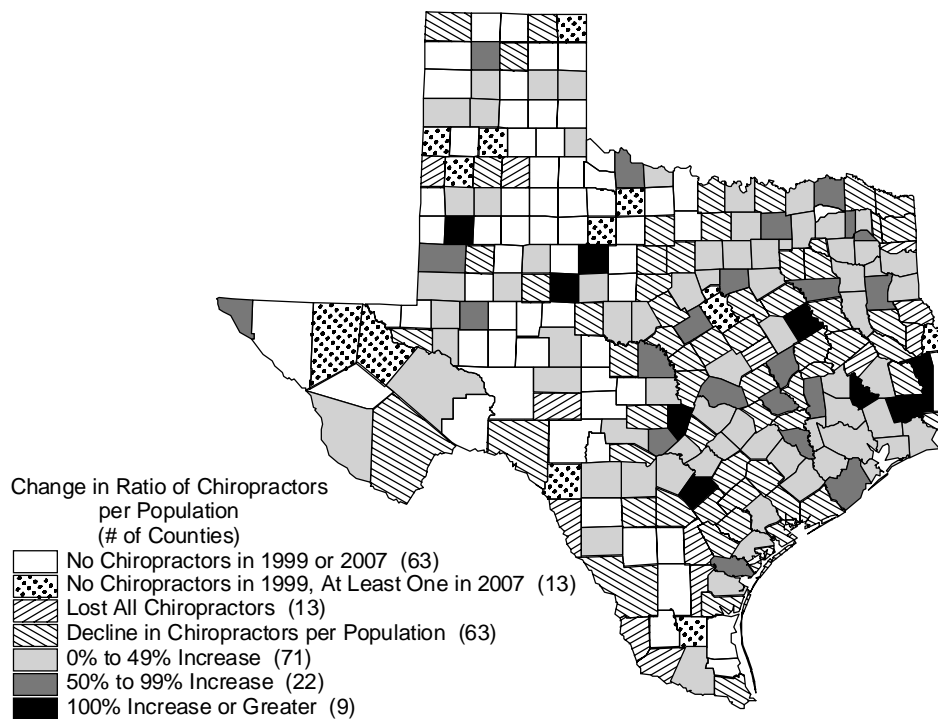
# Chiropractors

**Figure 24. Chiropractors per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1980-2007**



Source: Texas State Board of Chiropractic Examiners  
 Source for Metropolitan-Nonmetropolitan definition: Office of Management and Budget  
 Figures include all licensed, active, in-state chiropractors

**Figure 25. Percent Change in Ratio of Chiropractors per 100,000 Population from 1999 to 2007**



Source: Texas State Board of Chiropractic Examiners  
 Produced By: Health Professions Resource Center, Center for Health Statistics,  
 Texas Department of State Health Services



# Podiatrists

A podiatrist is a medical specialist concerned with the preventive and diagnostic care of the foot and ankle. A podiatrist diagnoses, treats, operates on and prescribes for any foot disease, injury, deformity, or ailment such as tumors, fractures, and skin and nail diseases. These may be corrected surgically through treatment or medication. A minimum of 120 hours of undergraduate preparation is required to enter a professional program in podiatry. The educational program in podiatry takes four years, including clinical training. Completion of at least one-year minimum American Podiatric Medical Association (APMA) approved residency is required for licensure in Texas. There are no schools of podiatry in Texas and only eight accredited schools nationally.

Texas has traditionally lagged behind the U.S. in podiatrist supply ratios, and the Texas ratios have traditionally increased at a slow rate (Figure 26). The ratios are greater in metropolitan areas than in nonmetropolitan areas (Figure 28). The highest concentration of podiatrists is in the Central Texas area, with smaller concentrations in the North Texas and Harris County areas (Figure 27). There are very few podiatrists in West Texas, South Texas, and the Panhandle. The nonmetropolitan border counties have higher average ratios than the nonmetropolitan non-border counties (Table 5). Central Texas and North Texas, around the Dallas-Fort Worth area, experienced the largest growth rate in ratios from 1999 to 2007 (Figure 29). Seventeen counties that did not have a podiatrist in 1999 had one in 2007, while six counties lost all of their podiatrists over that time. During that time, 37 counties experienced a decrease in ratios, while 54 experienced an increase. In 2007, Texas had 169 counties without a podiatrist (Table 5).

**Table 5: Summary Statistics for Podiatrists in Texas**

**Podiatrists per  
100,000 Population**

1977:	2.0	268
1994:	3.1	567
1999:	3.3	665
2007:	3.6	865

**Total Podiatrists**

**2007 Podiatrists Facts:**

Race/Ethnicity	Gender	Median Age
Not Available	Male	80.6% 47
	Female	19.4% 39

**Number of Podiatrists per 100,000 Population in 2007**

Metropolitan Border Areas:	2.5
Nonmetropolitan Border Areas:	1.3
Metropolitan non-Border Areas:	4.1
Nonmetropolitan non-Border Areas:	1.7

For the 119 counties designated as whole county HPSAs\*: 0.9

For the 68 counties designated as partial county or special population HPSAs\*: 4.1

For the 67 counties not designated as HPSAs\*: 3.2

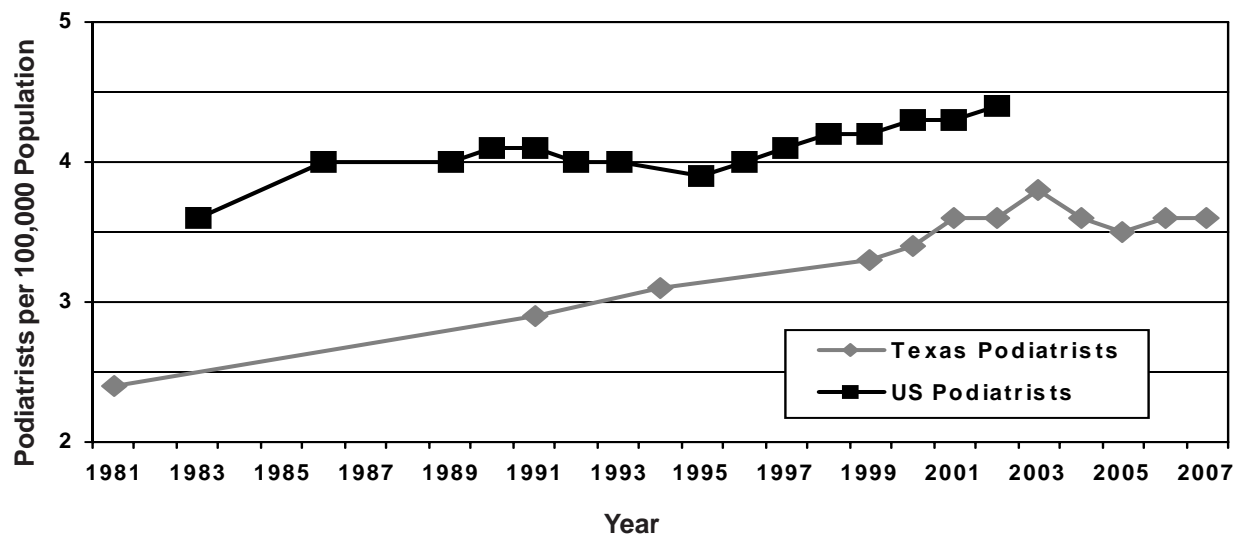
**County Level Data**

# of counties with an increase in number of podiatrists 1999-2007:	54
# of counties with a decrease in number of podiatrists 1999-2007:	13
# of counties with no podiatrists in 2007:	169

\*Health Professional Shortage Areas

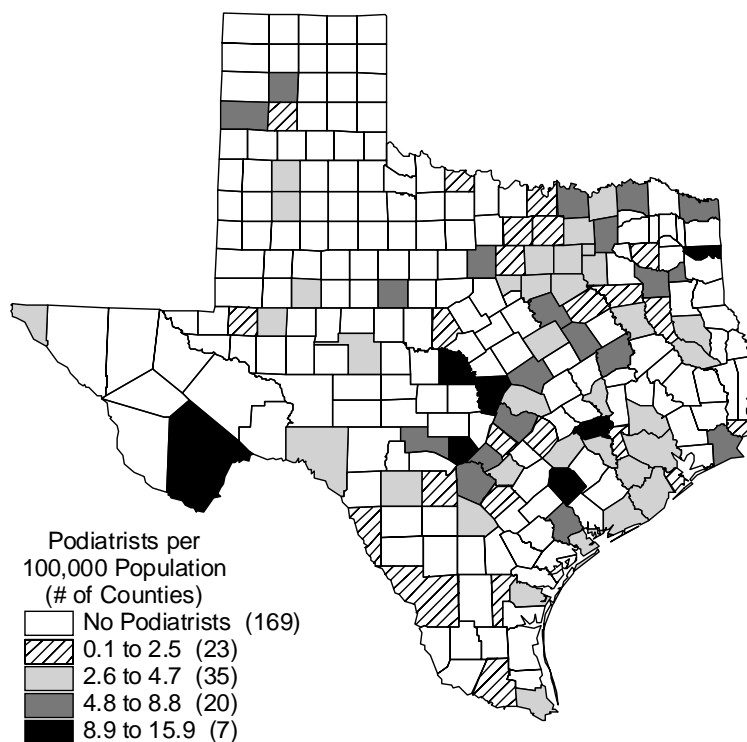
# Podiatrists

**Figure 26. Podiatrists per 100,000 Population, U.S. and Texas, 1981-2007**



Source: Texas State Board of Podiatric Medical Examiners;  
HRSA, Bureau of Health Professions  
Figures include all licensed, active, in-state podiatrists

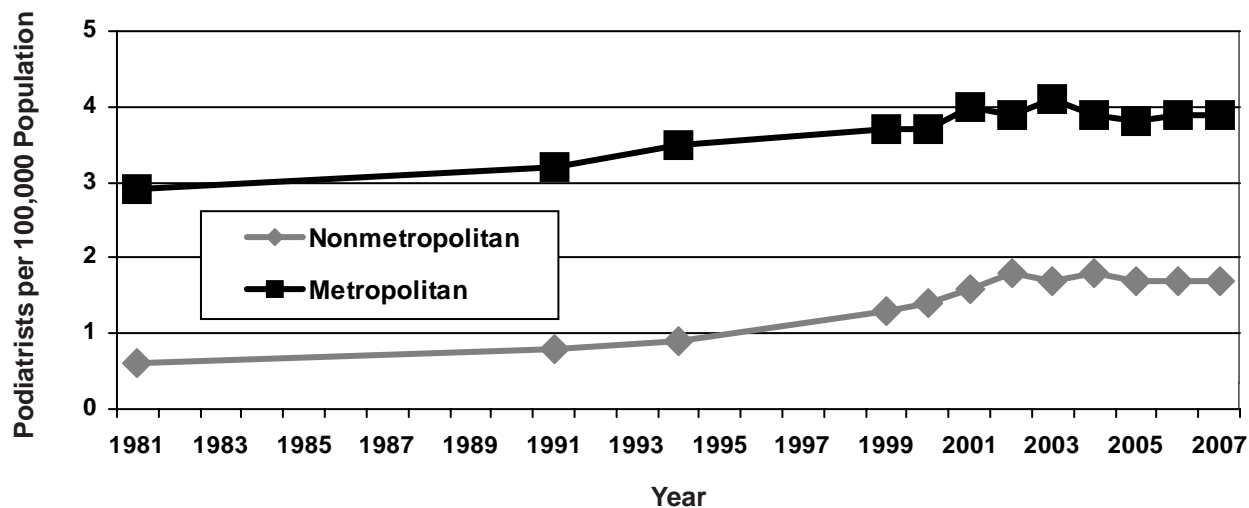
**Figure 27. Podiatrists per 100,000 Population, Texas, 2007**



Source: Texas State Board of Podiatric Medical Examiners  
Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

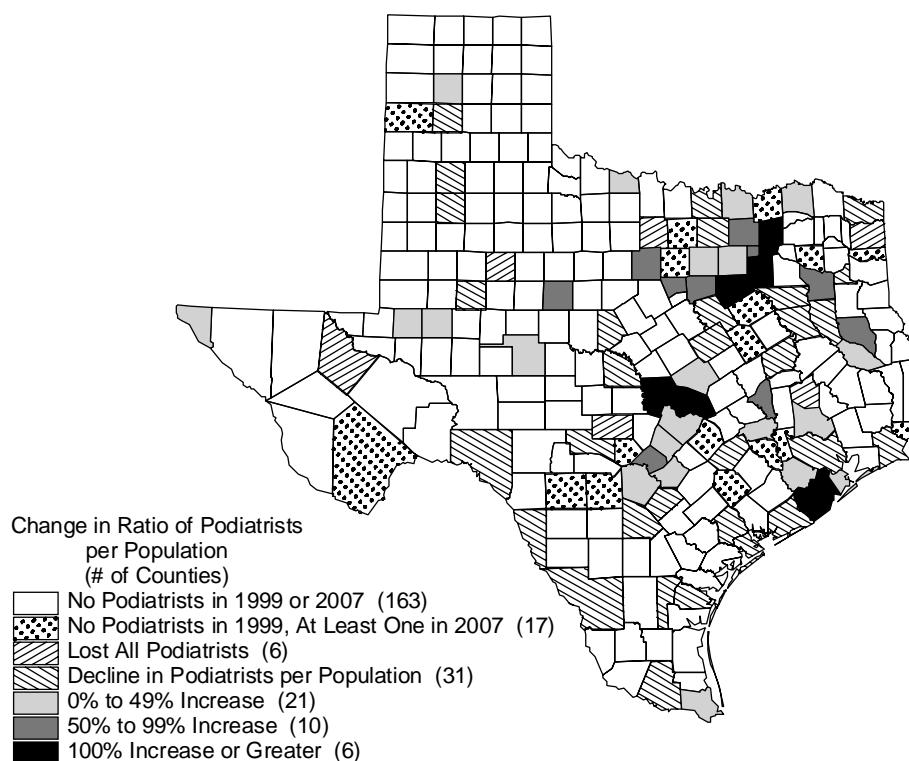
# Podiatrists

**Figure 28. Podiatrists per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1981-2007**



Source: Texas State Board of Podiatric Medical Examiners  
 Source for Metropolitan-Nonmetropolitan definition: Office of Management and Budget  
 Figures include all licensed, active, in-state podiatrists

**Figure 29. Percent Change in Ratio of Podiatrists per 100,000 Population from 1999 to 2007**



Source: Texas State Board of Podiatric Medical Examiners  
 Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services



# NURSING PROFESSIONS

## **NURSING PROFESSIONS**

Nurse Practitioners .....	33
Certified Nurse Midwives .....	36
Registered Nurses .....	39
Licensed Vocational Nurses .....	42

# Nurse Practitioners

A Nurse Practitioner (NP) is an Advanced Practice Nurse (APN). APNs are Registered Nurses (RNs) that have been granted authorization by the Board of Nursing to practice as an NP, Certified Nurse Midwife, Clinical Nurse Specialist, or Certified Registered Nurse Anesthetist. This authorization is based on advanced education and experience and in most cases national certification. They diagnose and treat illnesses within their specialty area of practice, prescribe medications, and order medications, tests, and treatments in hospitals, clinics, nursing homes, and other health facilities. NPs practice both under the authority of their nursing license and in collaboration with physicians. Some functions such as prescribing medication can be performed only in collaboration with a physician under protocols.

The data for NPs were obtained from the RN master licensing files. The “position type” on the file has variables for administrator, school nurse, researcher, nurse practitioner, clinical nurse specialist, nurse anesthetist, nurse midwife, and others. An RN record was selected as an NP record based on the position type of “nurse practitioner.” An APN may be certified in multiple position types, but can only choose one “position type” when completing renewal forms.

Texas lags the U.S. in the ratio of NPs-to-population, but the ratios for both have been increasing steadily over the last decade (Figure 30). The National Sample Survey reported a ratio of 27.7 in 2004, compared with a Texas ratio of 17.1 that year. Most of the counties with the highest NP ratios were in the northern parts of the state (Figure 31). Overall, the average ratios of NPs in metropolitan counties were higher than in nonmetropolitan (Figure 32). Fifty counties that did not have an NP in 1998 had at least one in 2007 (Figure 33). In 2007, 60 counties had no NPs; most of these were in the Panhandle, West Texas, and South Texas (Table 6). Most counties (159) have had an increase in the ratio of NPs-to-population since 1998, and 56 counties have had a 100% or greater increase (Figure 33). While the counties with the largest increases in ratios were scattered across the state, the greatest concentrations of counties with a 100% increase or greater in ratios were in the East and North-East Texas areas. A few of the counties with an increase of 100% or greater were located in border county areas. Only 47 counties experienced a decrease in ratios.

**Table 6: Summary Statistics for Nurse Practitioners (NP) in Texas**

NPs per 100,000 Population		Total NPs
1990:	5.3	901
1998:	10.2	2,000
2007:	20.5	4,858

2007 Nurse Practitioners Facts:				
Race/Ethnicity		Gender	Median Age	
White	81.7%	Male	8.6%	44
Black	5.5%	Female	91.4%	48
Hispanic	7.7%			
Other	5.1%			

Number of NPs per 100,000 Population in 2007	
Metropolitan Border Areas:	14.2
Nonmetropolitan Border Areas:	8.1
Metropolitan non-Border Areas:	22.3
Nonmetropolitan non-Border Areas:	14.4

For the 119 counties designated as whole county HPSAs\*: 9.2

For the 68 counties designated as partial county or special population HPSAs\*: 23.1

For the 67 counties not designated as HPSAs\*: 16.5

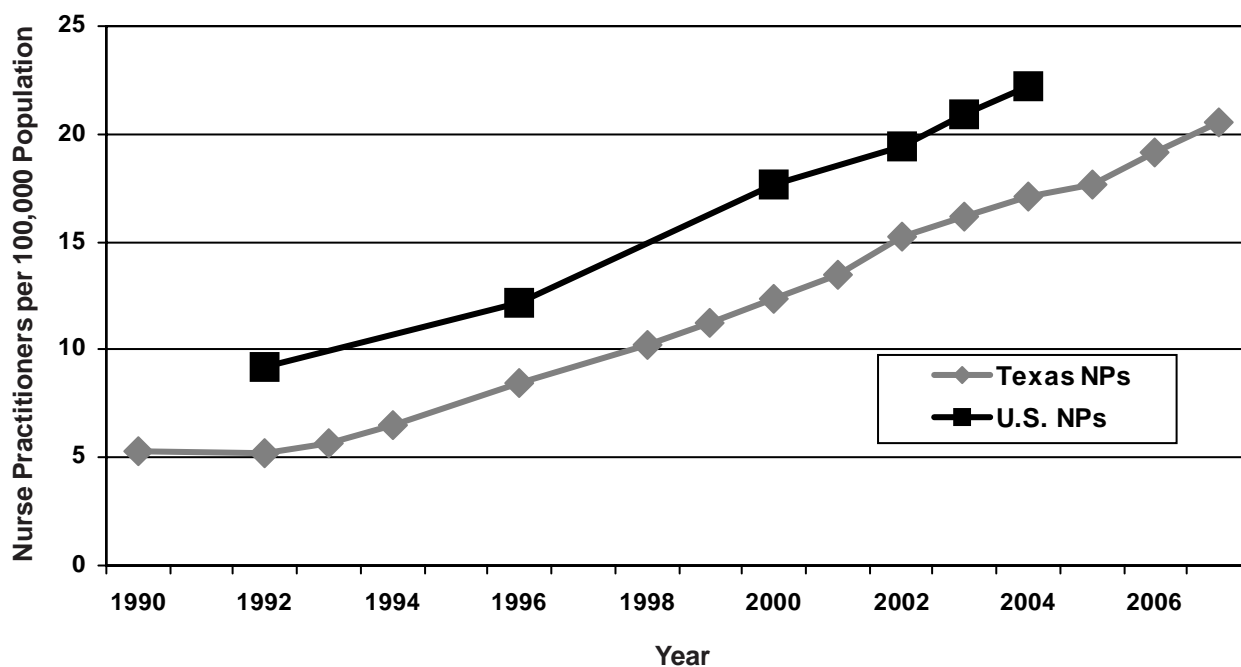
County Level Data	
# of counties with an increase in number of NPs 1998-2007:	155
# of counties with a decrease in number of NPs 1998-2007:	23
# of counties with no NP in 2007:	60

\*Health Professional Shortage Areas

*Note: The Nurse Practitioner totals in this report differ from the totals presented on the Board of Nursing's website because different data sources were used. The data in this report reflects the type of position the nurse was working in when the license was renewed.*

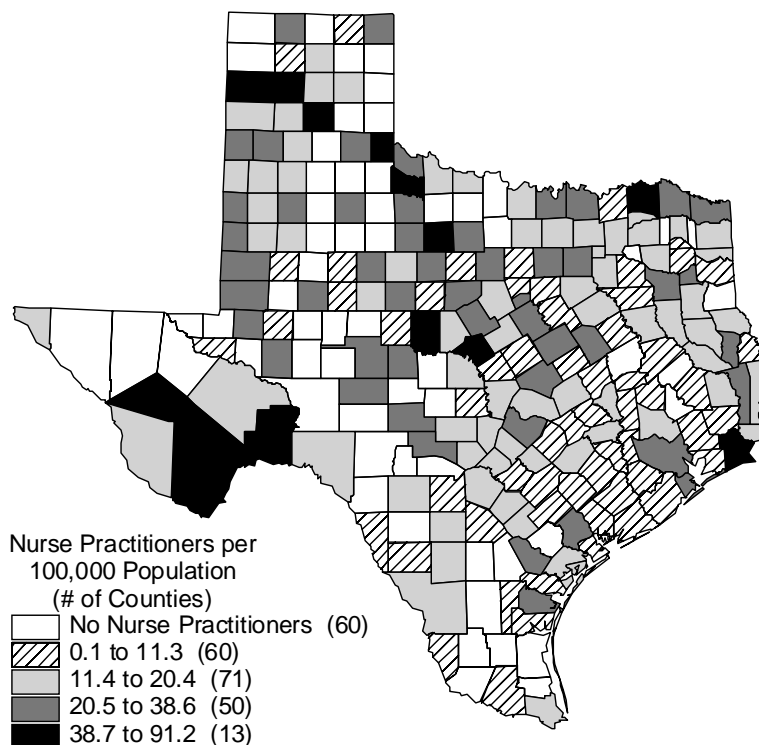
# Nurse Practitioners

**Figure 30. Nurse Practitioners per 100,000 Population, U.S. and Texas, 1990-2007**



Source: Texas Board of Nursing;  
HRSA, Bureau of Health Professions  
Figures include all licensed, active, in-state nurse practitioners

**Figure 31. Nurse Practitioners per 100,000 Population, Texas, 2007**

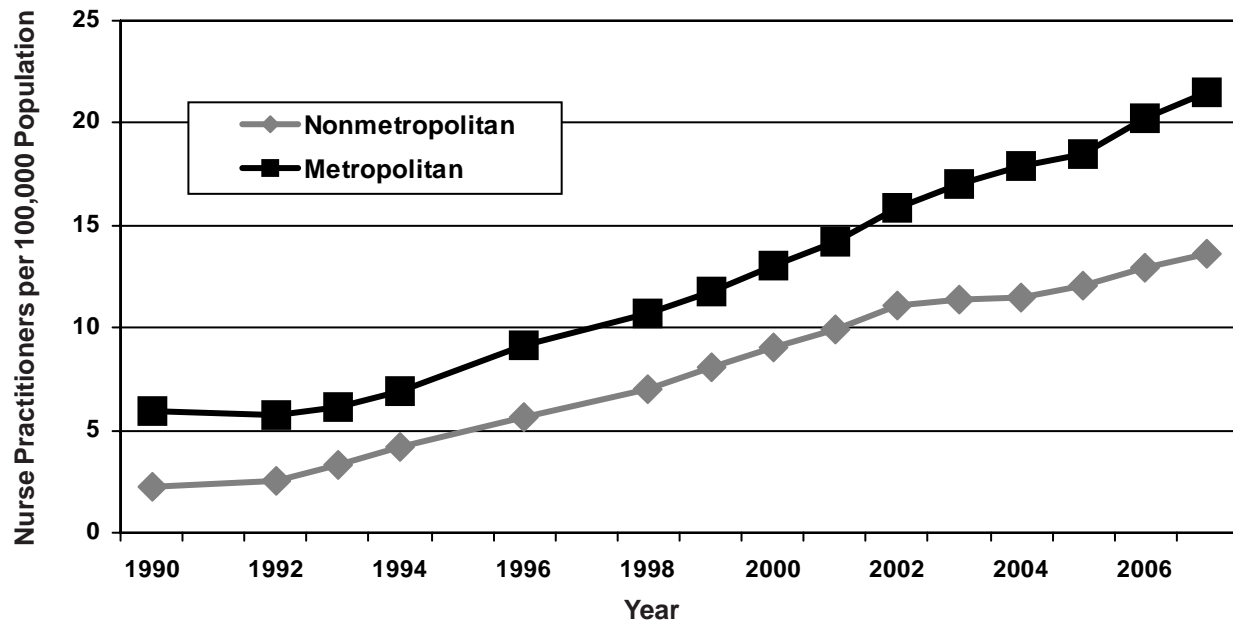


Source: Texas Board of Nursing  
Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services



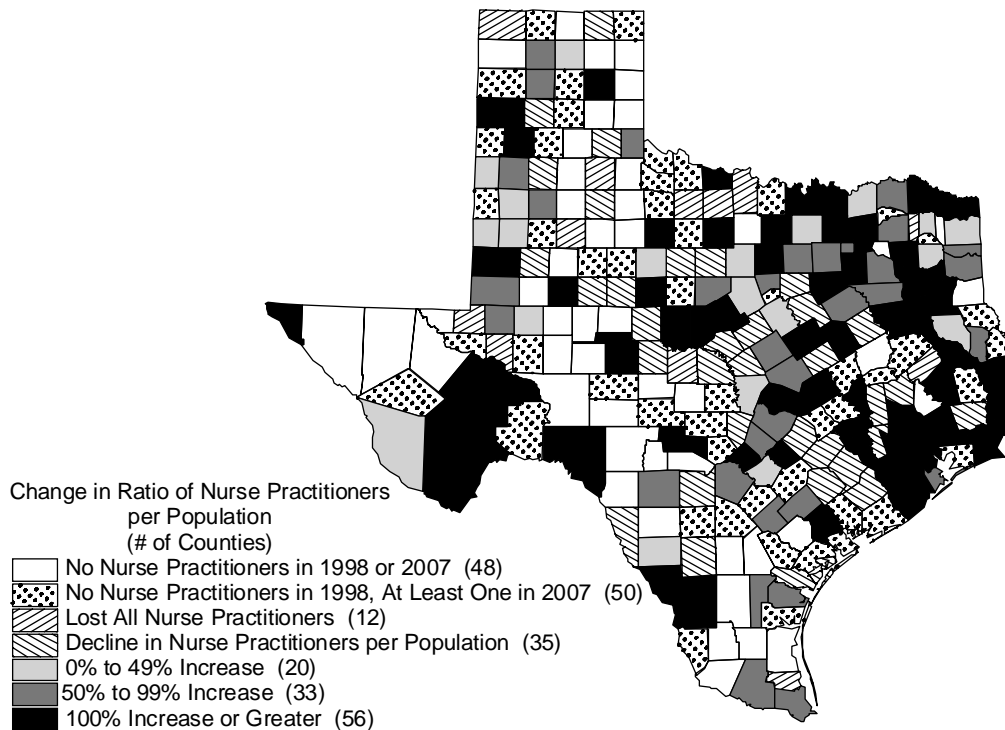
# Nurse Practitioners

**Figure 32. Nurse Practitioners per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1990-2007**



Source: Texas Board of Nursing  
 Source for Metropolitan-Nonmetropolitan definition: Office of Management and Budget  
 Figures include all licensed, active, in-state nurse practitioners

**Figure 33. Percent Change in Ratio of Nurse Practitioners per 100,000 Population from 1998 to 2007**



Source: Texas Board of Nursing  
 Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

# Certified Nurse Midwives

A Certified Nurse Midwife (CNM) is an Advanced Practice Nurse (APN). APNs are Registered Nurses (RNs) that have been granted authorization by the Board of Nursing to practice as an NP, Certified Nurse Midwife, Clinical Nurse Specialist, or Certified Registered Nurse Anesthetist. This authorization is based on advanced education and experience and in most cases national certification. A CNM provides obstetrical and gynecological care for women during pregnancy, childbirth, and the postpartum period. In Texas, there are two types of midwives: Direct Entry Midwives and CNMs. Direct Entry Midwives' educational preparation does not require an RN background and they are regulated by the Texas Department of State Health Services' Midwifery Board. Certified Nurse Midwives' educational preparation requires an RN background and they are regulated by the Texas Board of Nursing.

In Texas, in 2007, there were 248 CNMs, compared to 158 Direct Entry Midwives. The statistics in this report focus only on CNMs. The data for CNMs were obtained from the RN master licensing files. The "position type" on the file has variables for administrator, school nurse, researcher, nurse practitioner, clinical nurse specialist, nurse anesthetist, nurse midwife, and others. An RN record was selected as a CNM record based on the position type of "nurse midwife." An APN may be certified in multiple position types, but can only choose one "position type" when completing renewal forms.

Texas lags the U.S. in the supply of CNMs, relative to the female population of childbearing age\*. The ratios for Texas were increasing until 2001 when they began to level off, and then in 2005 they began to decline. (Figure 34). Compared to other health professions in Texas, there are very few CNMs. Seventeen counties that did not have a CNM in 1998 had at least one in 2007 (Figure 37). During that time, 31 counties experienced an increase in ratios while 23 counties experienced a decrease. In 2007, there were 213 counties in Texas that did not have a CNM. The counties with CNMs tend to be metropolitan, and the metropolitan counties have historically had higher CNM-to-population ratios than the nonmetropolitan counties, with the exception of the mid-1990s, when the ratios were higher for nonmetropolitan counties (Figure 36).

**Table 7: Summary Statistics for Certified Nurse Midwives (CNM) in Texas**

CNMs per 100,000 Childbearing Age Females*		Total CNMs	<u>2007 CNMs Facts:</u>				
			Race/Ethnicity		Gender	Median Age	
1990:	3.3	135	White	86.7%	Male	0.8%	49.5
1996:	3.5	155	Black	6.0%	Female	99.2%	51.0
2007:	4.4	248	Hispanic	4.8%			
			Other	2.4%			

Number of CNMs per 100,000 Childbearing Age Females* in 2007		
Metropolitan Border Areas:		7.0
Nonmetropolitan Border Areas:		3.9
Metropolitan non-Border Areas:		4.8
Nonmetropolitan non-Border Areas:		2.4
For the 119 counties designated as whole county HPSAs**:		1.7
For the 68 counties designated as partial county or special population HPSAs**:		5.4
For the 67 counties not designated as HPSAs**:		3.8

County Level Data	
# of counties with an increase in number of CNMs 1998-2007:	32
# of counties with a decrease in number of CNMs 1998-2007:	18
# of counties with no CNM in 2007:	213

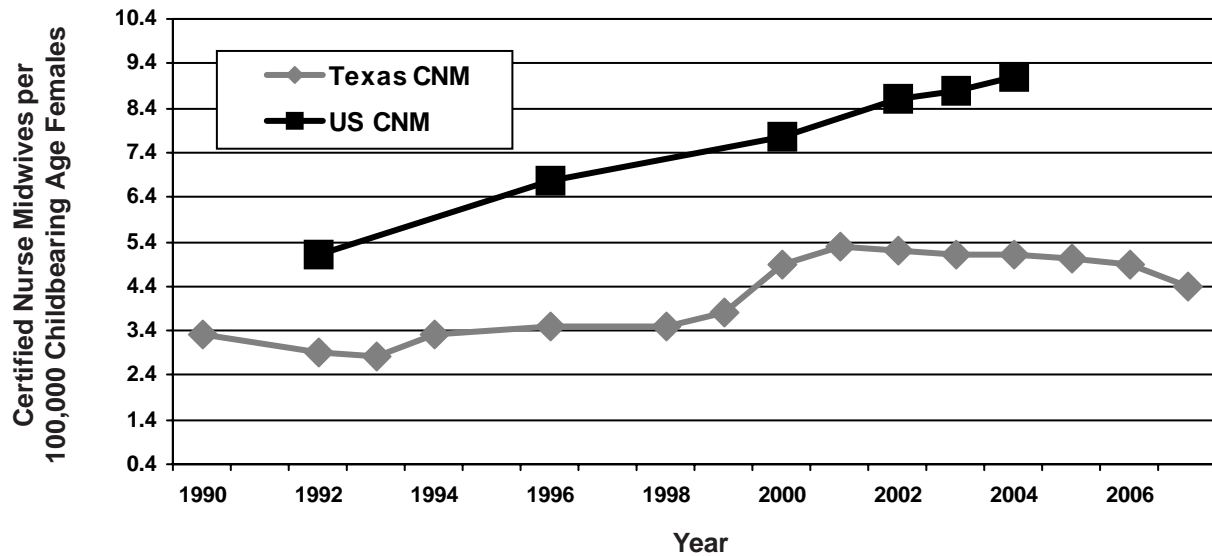
\*Childbearing age: 15-44 years

\*\*Health Professional Shortage Areas

*Note: The Certified Nurse Midwife totals in this report differ from the totals presented on the Board of Nursing's and the Health Professions Resource Center's websites because different data sources were used. The data in this report reflects the type of position the nurse was working in when the license was renewed.*

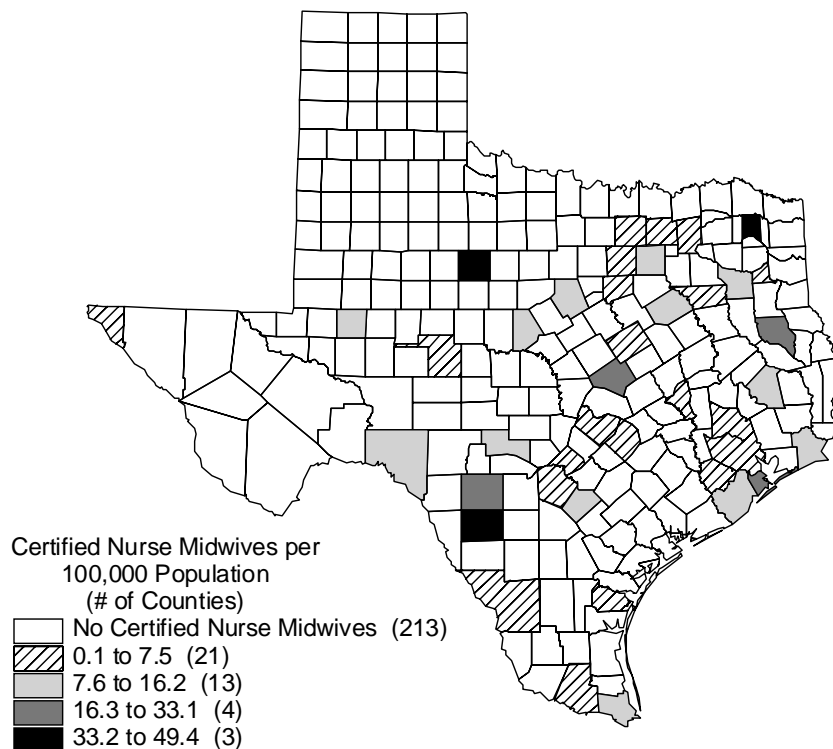
# Certified Nurse Midwives

**Figure 34. Certified Nurse Midwives per 100,000 Childbearing Age Females, U.S. and Texas, 1990-2007**



Source: Texas Board of Nursing;  
HRSA, Bureau of Health Professions  
Figures include all licensed, active, in-state certified nurse midwives

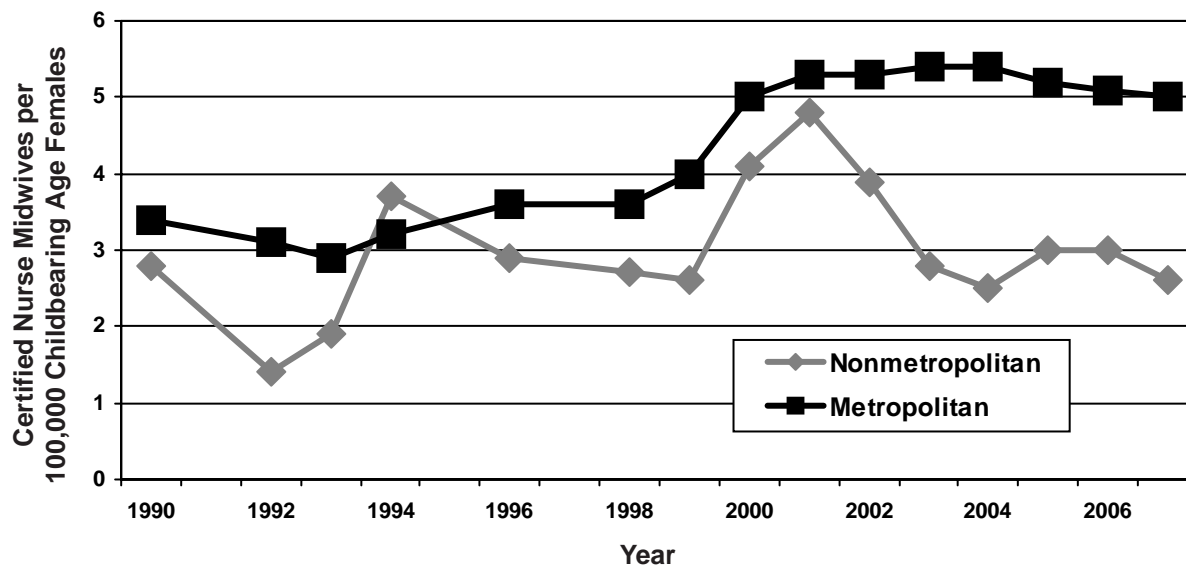
**Figure 35. Certified Nurse Midwives per 100,000 Childbearing Age Females, Texas, 2007**



Source: Texas Board of Nursing  
Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

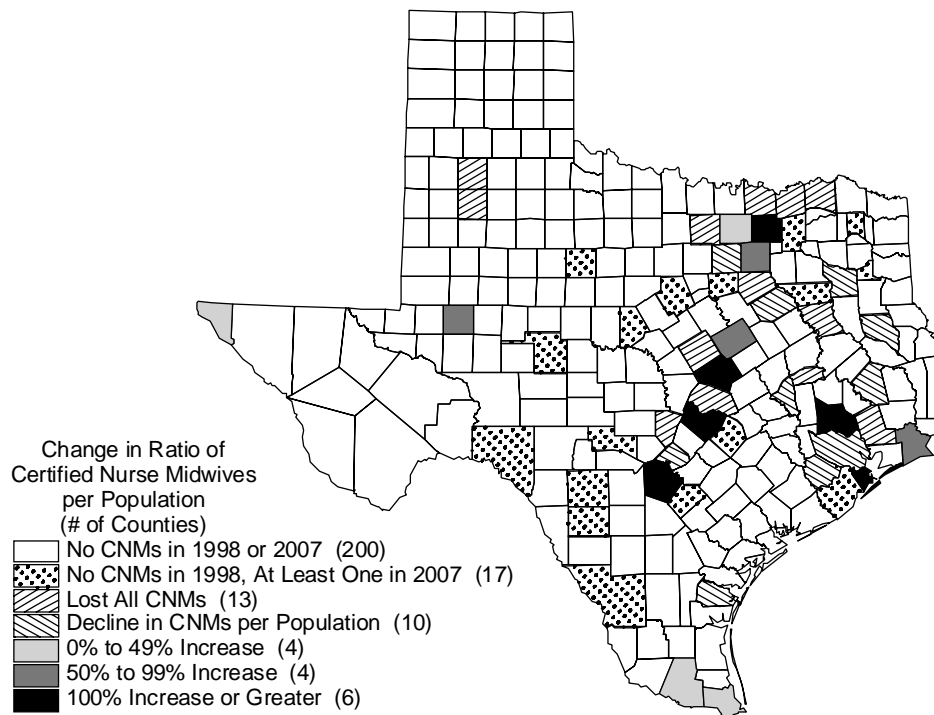
# Certified Nurse Midwives

**Figure 36. CNMs per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1990-2007**



Source: Texas Board of Nursing  
 Source for Metropolitan-Nonmetropolitan definition: Office of Management and Budget  
 Figures include all licensed, active, in-state certified nurse midwives

**Figure 37. Percent Change in Ratio of CNMs per 100,000 Population from 1998 to 2007**



Source: Texas Board of Nursing  
 Produced By: Health Professions Resource Center, Center for Health Statistics,  
 Texas Department of State Health Services

# Registered Nurses

A Registered Nurse (RN) provides the full range of nursing services including patient assessment, development care plans, case management, health teaching, patient education and counseling, and administration of prescribed medications and treatments. RNs with specialized education perform specialty roles such as infusion therapy and first assisting at surgery.

All of the RNs included in the statistics for this report held active licenses and were employed either part time or full time in nursing. Although some RNs were employed as teachers or administrators and did not provide direct patient care, they were included in the overall supply totals for Texas RNs.

There are more RNs in Texas than any other health profession. Still, Texas lags the U.S. in the ratio of RNs-to-population (Figure 38). The National Sample Survey of Nurses reported a U.S. ratio of 824.6 in 2004; Texas had a ratio of 624.5 licensed RNs per 100,000 population that year. The highest concentrations of RNs were in Central and East Texas (Figure 39). Metropolitan counties have consistently had a much higher ratio of nurses than the nonmetropolitan counties, however, the ratios for both geographic areas have been static since 2002 (Figure 40). There were only five counties that did not have an RN in 2007 (Table 8). Those five counties had a combined population of 8,542 people. Since 1998, 134 of Texas' 254 counties have had an increase in the ratio of RNs-to-population, including one county that did not have an RN in 1998 but had at least one in 2007. One hundred and nineteen counties had a decrease in ratios during that time, including four counties that lost all of their RNs (Figure 41). Although the border counties continue to have, in general, much lower RN-to-population ratios than the rest of the state, the ratios in those counties are increasing at a comparable rate to the rest of the state (Figure 41).

**Table 8: Summary Statistics for Registered Nurses (RN) in Texas**

**RNs per  
100,000 Population**

1986:	400.0	66,242
1994:	502.9	92,458
1999:	595.6	119,094
2007:	656.8	155,858

**Total RNs**

**2007 Registered Nurses Facts:**

Race/Ethnicity		Gender		Median Age
White	72.2%	Male	9.8%	44
Black	8.1%	Female	90.2%	47
Hispanic	9.4%			
Other	10.3%			

**Number of RNs per 100,000 Population in 2007**

Metropolitan Border Areas:	468.9
Nonmetropolitan Border Areas:	224.5
Metropolitan non-Border Areas:	715.3
Nonmetropolitan non-Border Areas:	465.1

For the 119 counties designated as whole county HPSAs\*: 249.8

For the 68 counties designated as partial county or special population HPSAs\*: 740.1

For the 67 counties not designated as HPSAs\*: 549.7

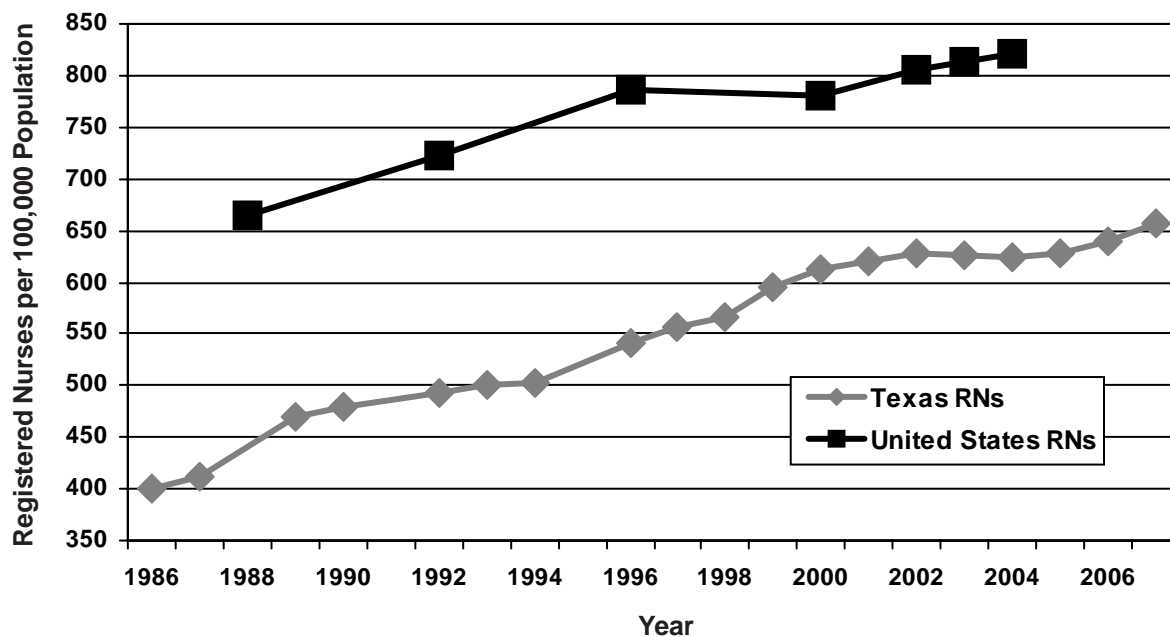
**County Level Data**

# of counties with an increase in number of RNs 1998-2007:	156
# of counties with a decrease in number of RNs 1998-2007:	81
# of counties with no RN in 2007:	5

\*Health Professional Shortage Areas

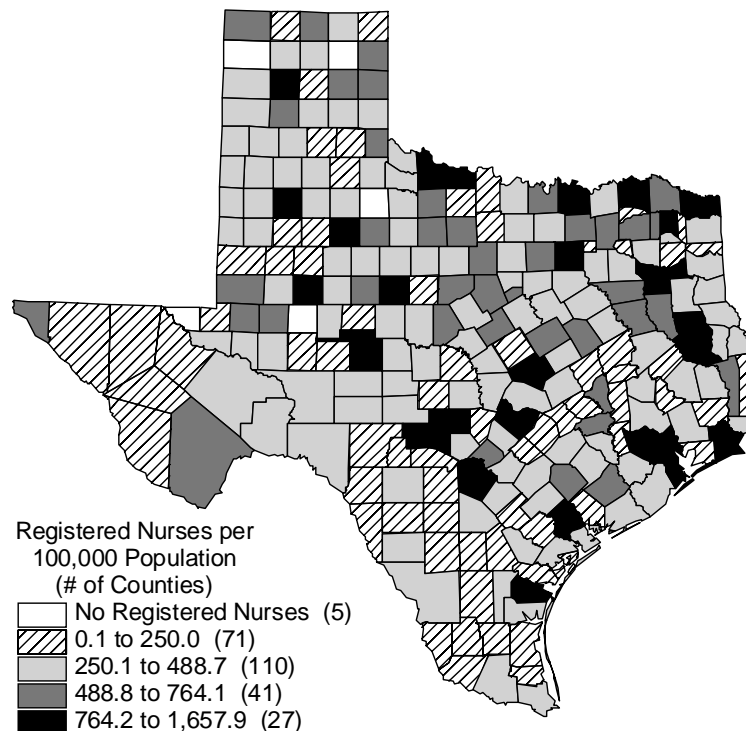
# Registered Nurses

**Figure 38. Registered Nurses per 100,000 Population, U.S. and Texas, 1986-2007**



Source: Texas Board of Nursing;  
HRSA, Bureau of Health Professions  
Figures include all licensed, active, in-state registered nurses

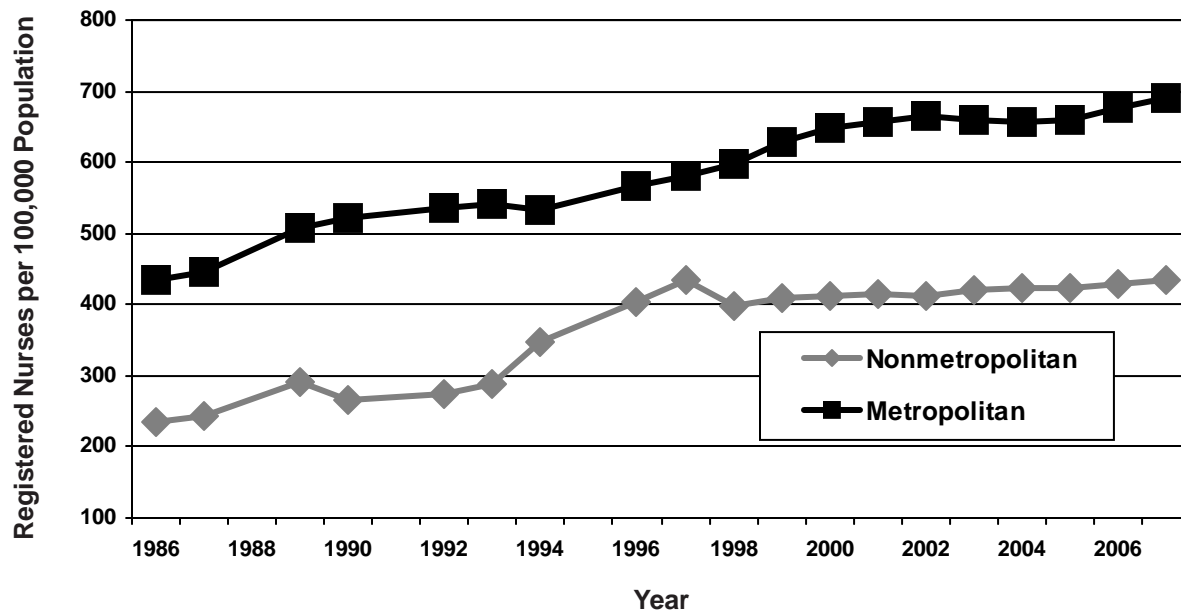
**Figure 39. Registered Nurses per 100,000 Population, Texas, 2007**



Source: Texas Board of Nursing  
Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

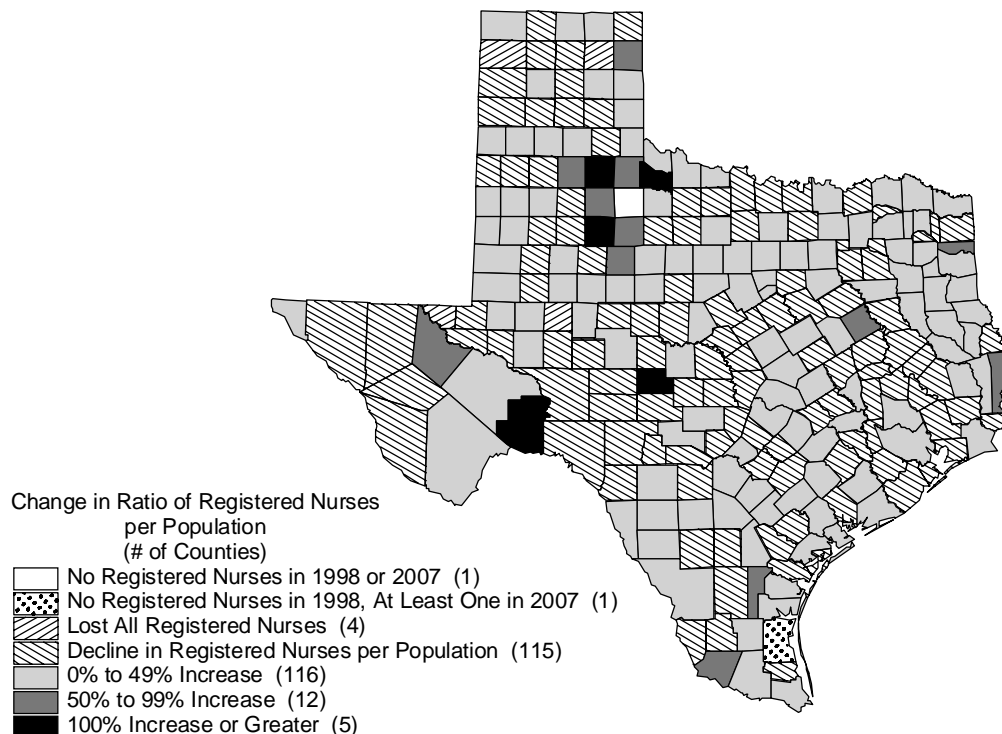
# Registered Nurses

**Figure 40. RNs per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1986-2007**



Source: Texas Board of Nursing  
 Source for Metropolitan-Nonmetropolitan definition: Office of Management and Budget  
 Figures include all licensed, active, in-state registered nurses

**Figure 41. Percent Change in Ratio of RNs per 100,000 Population from 1998 to 2007**



Source: Texas Board of Nursing  
 Produced By: Health Professions Resource Center, Center for Health Statistics,  
 Texas Department of State Health Services



# Licensed Vocational Nurses

A Licensed Vocational Nurse (LVN) provides nursing care under the direction of a registered nurse, a physician, or other authorized health care provider. LVNs provide bedside nursing care; observe, measure, record, and report patient health status indicators; and administer medications as directed.

The LVN profession is among the few health professions where Texas exceeds the U.S. average for provider-to-population ratios (Figure 42). However, over the last decade, there has been a net decline in the ratios for Texas. The ratios of LVNs in the U.S. have fluctuated over the last two decades, but like Texas, the general trend is a decline in supply. In contrast with most other professions, the ratios for LVNs are higher in nonmetropolitan areas than metropolitan areas (Figure 44). In general, the highest concentrations of LVNs are in locations where there are lower concentrations of RNs; however, as with RNs, very few counties in the Panhandle, West Texas, and South Texas have high ratios. For both LVNs and RNs, the ratios in the 32 county border area - even those of the metropolitan border counties - are lower than they are in most of the rest of the state. None of the three counties that did not have an LVN in 1998 had one in 2007 (Figure 45). Since 1998, 74 counties have experienced growth in the supply of LVNs relative to the population, while 177 counties experienced a decrease in supply ratios (Figure 45). In 2007, there were six counties that did not have an LVN.

**Table 9: Summary Statistics for Licensed Vocational Nurses (LVNs) in Texas**

LVNs per 100,000 Population	Total LVNs
1981: 286.7	42,276
1989: 293.9	49,389
1998: 299.2	58,795
2007: 274.9	65,230

## **2007 LVNs Facts:**

Race/Ethnicity	Gender	Median Age
White 58.2%	Male 9.6%	42
Black 19.3%	Female 90.4%	46
Hispanic 19.4%		
Other 3.1%		

## **Number of LVNs per 100,000 Population in 2007**

Metropolitan Border Areas:	197.4
Nonmetropolitan Border Areas:	293.3
Metropolitan non-Border Areas:	255.0
Nonmetropolitan non-Border Areas:	467.9

For the 119 counties designated as whole county HPSAs\*: 292.6

For the 68 counties designated as partial county or special population HPSAs\*: 261.4

For the 67 counties not designated as HPSAs\*: 313.2

## **County Level Data**

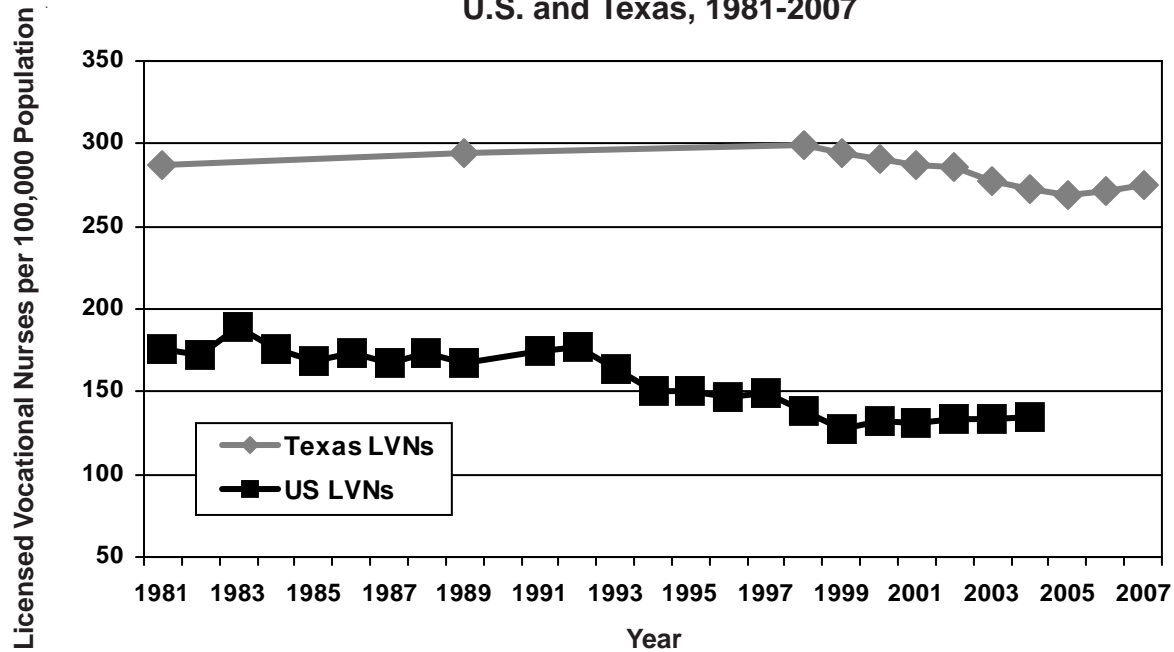
# of counties with an increase in number of LVNs 1998-2007:	124
# of counties with a decrease in number of LVNs 1998-2007:	113
# of counties with no LVNs in 2007:	6

\*Health Professional Shortage Areas



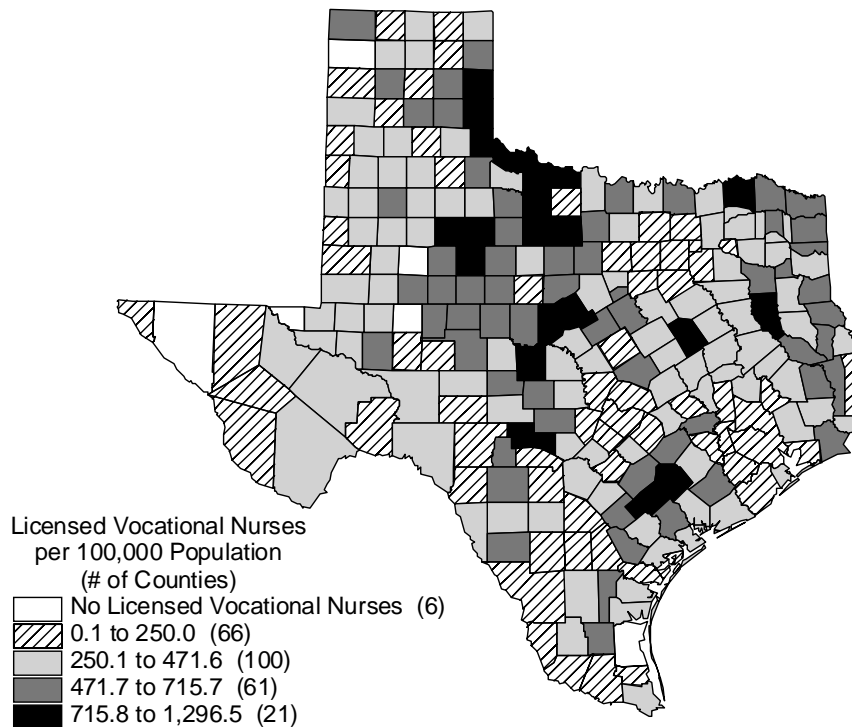
# Licensed Vocational Nurses

**Figure 42. Licensed Vocational Nurses per 100,000 Population, U.S. and Texas, 1981-2007**



Source: Texas Board of Nursing;  
 HRSA, Bureau of Health Professions  
 Figures include all licensed, active, in-state licensed vocational nurses

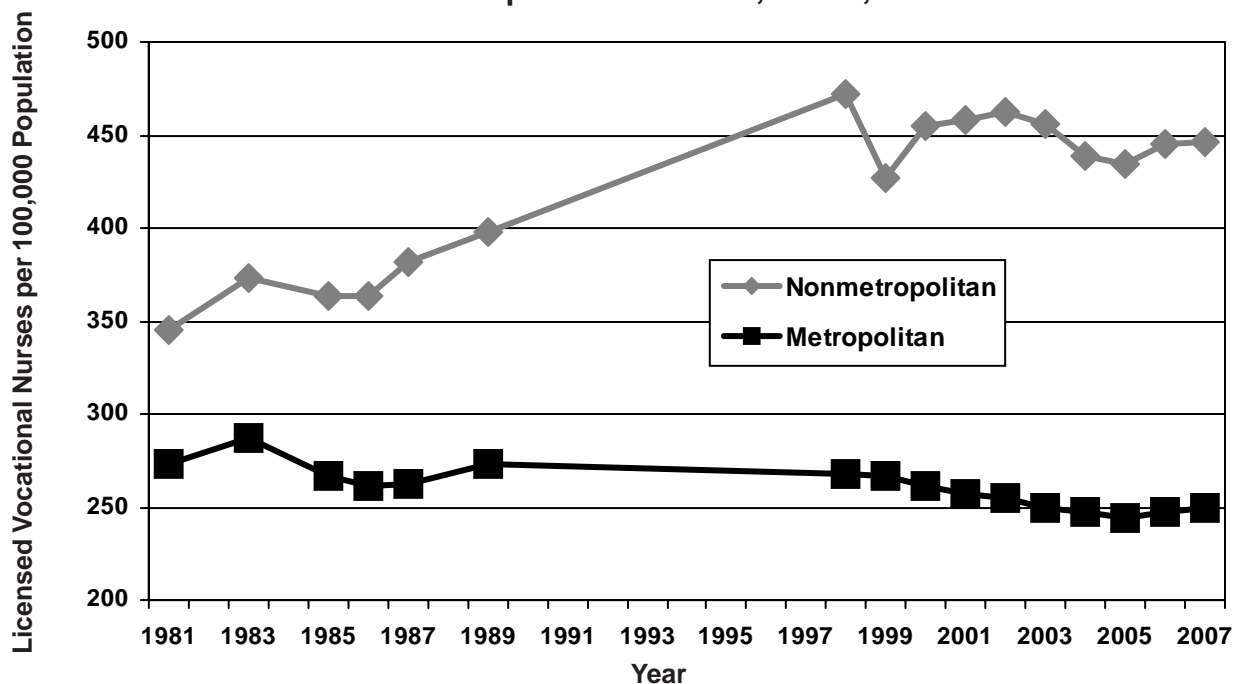
**Figure 43. Licensed Vocational Nurses per 100,000 Population, Texas, 2007**



Source: Texas Board of Nursing  
 Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

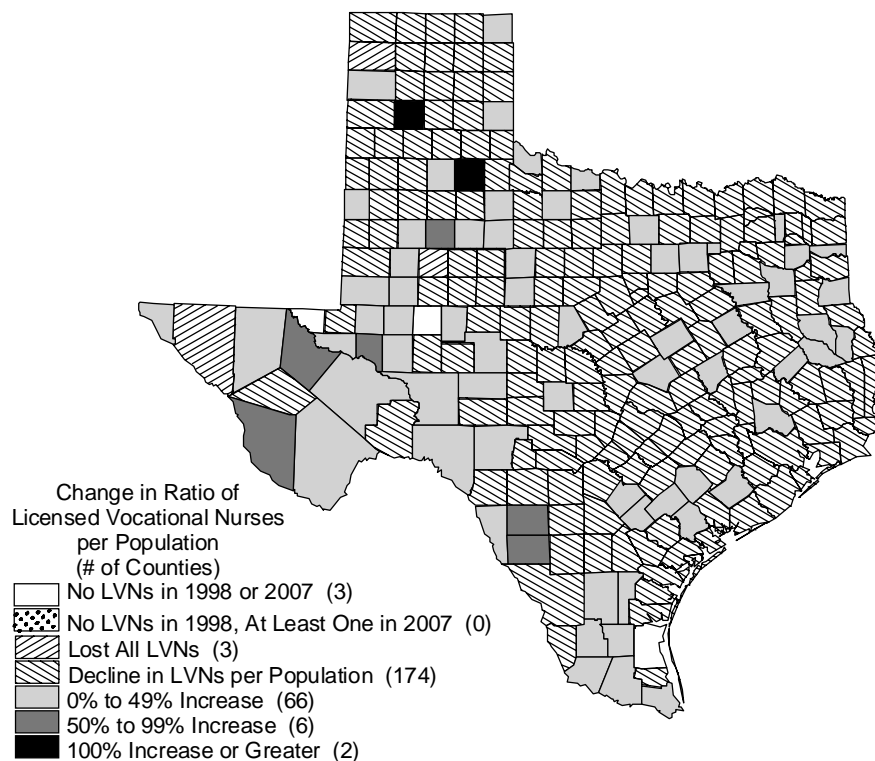
# Licensed Vocational Nurses

**Figure 44. LVNs per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1981-2007**



Source: Texas Board of Nursing  
 Source for Metropolitan-Nonmetropolitan definition: Office of Management and Budget  
 Figures include all licensed, active, in-state licensed vocational nurses

**Figure 45. Percent Change in Ratio of LVNs per 100,000 Population from 1998 to 2007**



Source: Texas Board of Nursing  
 Produced By: Health Professions Resource Center, Center for Health Statistics,  
 Texas Department of State Health Services

# DENTAL PROFESSIONS

**DENTAL PROFESSIONS**

Dentists ..... 47

Dental Hygienists ..... 50

# Dentists

A dentist diagnoses and treats, operates on, or prescribes medications for any disease, pain, injury, deficiency, deformity, or physical condition of the mouth, including the teeth and gums, and adjacent tissues. Some dentists specialize in a certain area of dentistry, just as a physician might specialize in a certain field. Most dentists (8,671 out of 10,151) are general dentists, which would, using the physician analogy, be the equivalent to a primary care physician. For the purpose of this report, the term general dentists will include dentists with the specialties of general dentist, public health dentist, and pediatric dentist. In this report, statistics are reported only for general dentists who are non-federal, non-resident, and non-administrative.

Just as there are Health Professional Shortage Areas designated for geographic areas with a shortage of primary care physicians, there are also dental Health Professional Shortage Areas (HPSAs) designated for areas with a shortage of dentists. The population-to-dentist ratio is the primary indicator used to determine if an area qualifies as a dental HPSA. In Texas, as of September 2007, 110 counties had some type of dental HPSA designation, and in 2007, there were 49 counties with no dentists; most of these were in the Panhandle, West Texas, and South Texas (Table 10). The supply of dentists, relative to the population, has fluctuated over the last two decades, but in general there has been a slight net increase, although the ratio in 2007 is virtually the same as it was in 1999 (Figure 46). The largest supply of dentists, based on ratios, is concentrated in the metropolitan areas. Border counties have ratios that are less than those of the nonmetropolitan non-border areas. The supply gap between metropolitan and nonmetropolitan counties has been widening over the years (Figure 48). Between 1998 and 2007, 131 counties experienced a decline in their ratios, while only 86 counties experienced an increase; only eleven counties experienced an increase in ratios of 50% or greater, which is considerably less than for most other health professions (Figure 49). Only four counties that did not have a dentist in 1998 had at least one in 2007.

**Table 10: Summary Statistics for Dentists in Texas**

## Dentists per 100,000 Population

1984:	35.4	5,670
1993:	36.9	6,655
2000:	36.5	7,417
2007:	36.5	8,671

## Total Dentists

### 2007 Dentists Facts:

Race/Ethnicity	Gender	Median Age
Not Available	Male	74.6%
	Female	25.4%
		52
		38

## Number of Dentists per 100,000 Population in 2007

Metropolitan Border Areas:	15.7
Nonmetropolitan Border Areas:	11.8
Metropolitan non-Border Areas:	41.1
Nonmetropolitan non-Border Areas:	25.2

For the 82 counties designated as whole county HPSAs\*: 14.6

For the 28 counties designated as partial county or special population HPSAs\*: 42.5

For the 144 counties not designated as HPSAs\*: 35.5

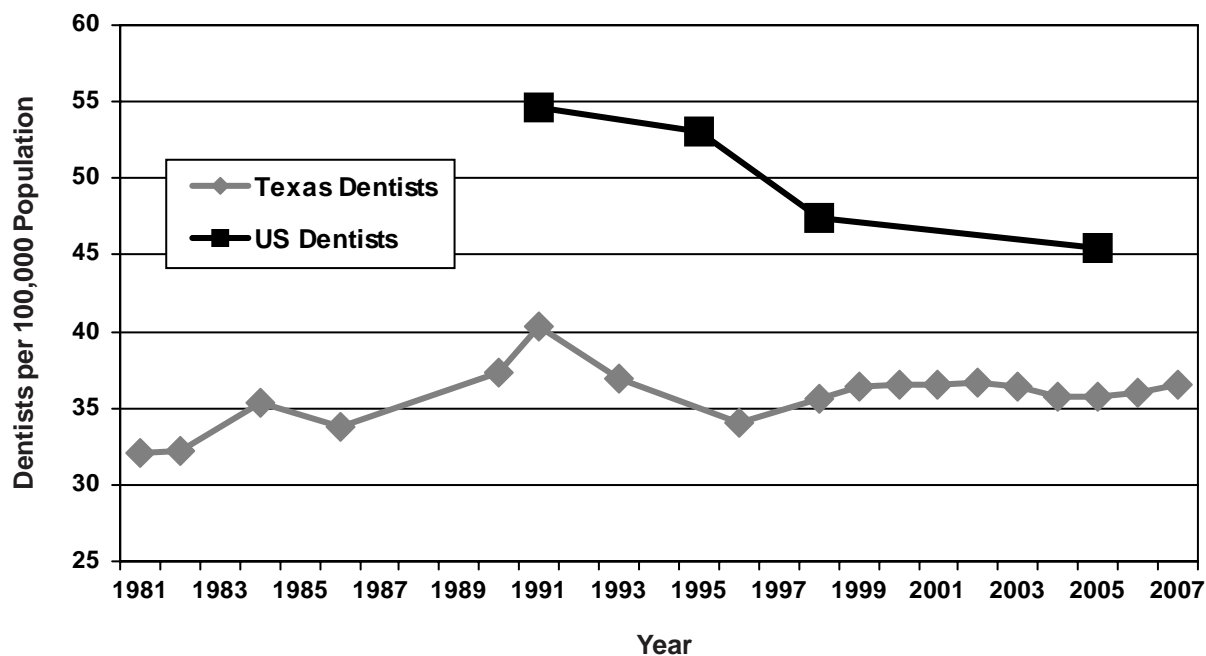
## County Level Data

# of counties with an increase in number of dentists 1998-2007:	93
# of counties with a decrease in number of dentists 1998-2007:	65
# of counties with no dentists in 2007:	49

\*Dental Health Professional Shortage Areas

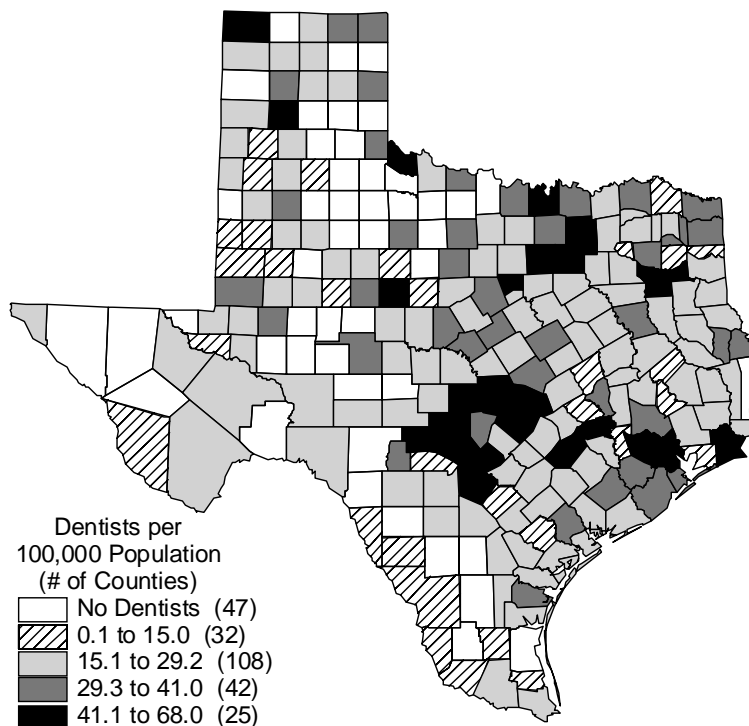
# Dentists

**Figure 46. Dentists per 100,000 Population, U.S. and Texas, 1981-2007**



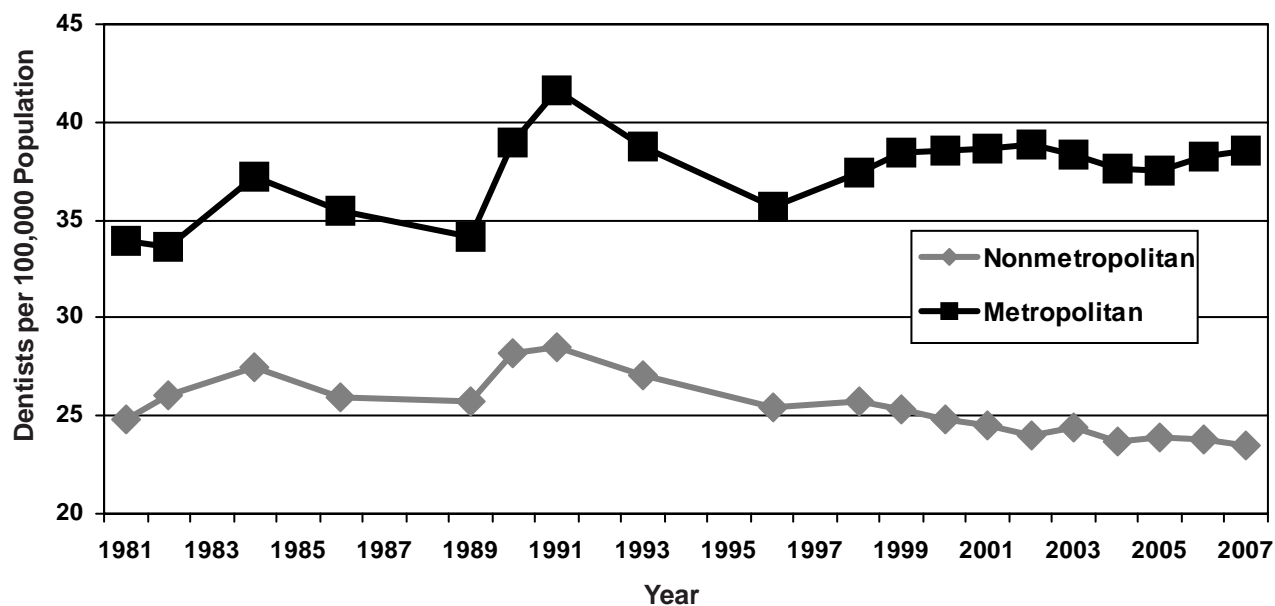
Source: Texas State Board of Dental Examiners;  
HRSA, Bureau of Health Professions  
Figures include all licensed, active, in-state, non-federal dentists

**Figure 47. Dentists per 100,000 Population, Texas, 2007**



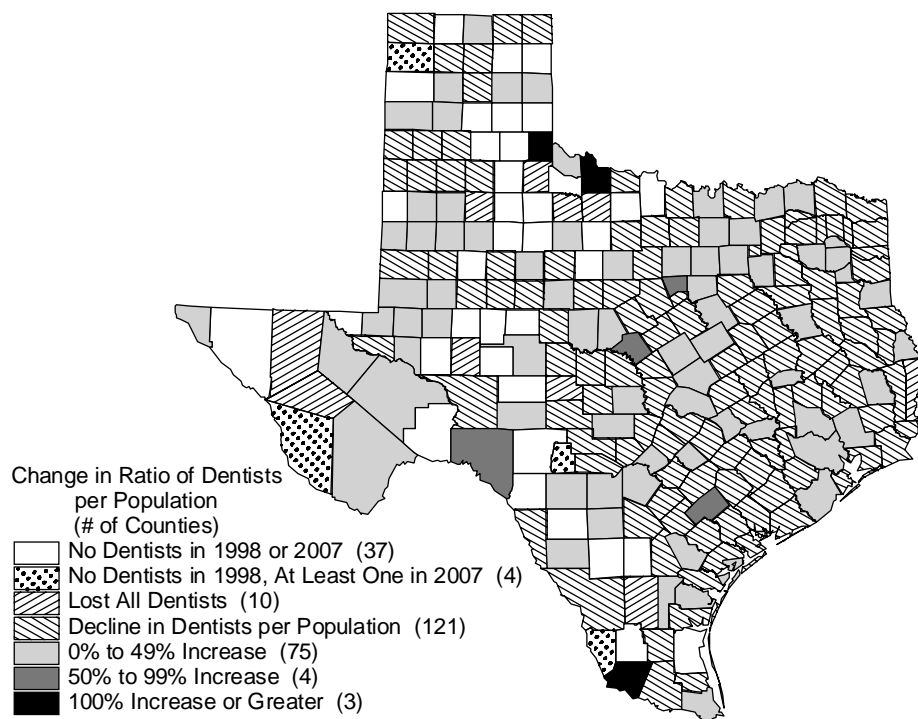
Source: Texas State Board of Dental Examiners  
Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

**Figure 48. Dentists per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1981-2007**



Source: Texas State Board of Dental Examiners  
 Source for Metropolitan-Nonmetropolitan definition: Office of Management and Budget  
 Figures include all licensed, active, in-state, non-federal dentists

**Figure 49. Percent Change in Ratio of Dentists per 100,000 Population from 1998 to 2007**



Source: Texas State Board of Dental Examiners  
 Produced By: Health Professions Resource Center, Center for Health Statistics,  
 Texas Department of State Health Services

# Dental Hygienists

A dental hygienist usually works under the direct supervision of a dentist; however, a licensed dentist may delegate orally or in writing a service, task, or procedure to a dental hygienist who is under the supervision and responsibility of the dentist under certain conditions, and the physical presence of the dentist is not required. Also, dental hygienists with two years experience are allowed to provide services without prior authorization of a dentist in school based health centers and certain nursing facilities provided the hygienist refers the patient for dental services if needed. Dental hygienists collect information for patient histories, examine teeth and gums, perform dental cleaning, and apply medicines to aid in stopping dental decay. They are eligible for licensure after graduating from a community college (two-year program) or from a three-or four-year university program.

The ratios of dental hygienists-to-population have steadily increased in Texas since 1981, although they have leveled off since 2002. (Figure 50). The ratio for Texas has lagged behind the U.S. for most of the past two decades. Since dental hygienists usually practice with a supervising dentist, their geographic distribution is linked to that of dentists. Thus, the ratios for dental hygienists are much higher in the metropolitan areas than in nonmetropolitan areas (Figure 52). Most of the border counties have very low dental hygienists-to-population ratios. Between 1998 and 2007, 95 counties experienced a decline in their ratios, including fourteen counties that lost all of their dental hygienists. One hundred and sixteen counties experienced an increase in supply ratios, including fourteen counties that did not have a dental hygienist in 1998 but had at least one in 2007 (Figure 53). Eighteen counties more than doubled their ratios (Figure 53). The growth in supply, relative to the population, is occurring in mostly non-metropolitan areas in Central Texas - just south of Travis County - and an area south-west of the Dallas-Fort Worth Metroplex (Figure 51). There is also large growth in the Abilene metropolitan area. In 2007, there were 57 counties with no dental hygienists (Table 11), and 49 counties with no dentists.

**Table 11: Summary Statistics for Dental Hygienists in Texas**

Dental Hygienists per 100,000 Population	Total Dental Hygienists
---	----------------------------

1981:	23.5	3,446
1993:	31.9	5,748
2000:	34.7	7,057
2007:	38.7	9,188

## 2007 Dental Hygienists Facts:

Race/Ethnicity	Gender	Median Age
Not Available	Male	1.5% 38
	Female	98.5% 42

## **Number of Dental Hygienists per 100,000 Population in 2007**

Metropolitan Border Areas:	18.6
Nonmetropolitan Border Areas:	8.4
Metropolitan non-Border Areas:	42.8
Nonmetropolitan non-Border Areas:	30.5

For the 82 counties designated as whole county HPSAs\*: 15.9  
 For the 28 counties designated as partial county or special population HPSAs\*: 40.5  
 For the 144 counties not designated as HPSAs\*: 43.1

## **County Level Data**

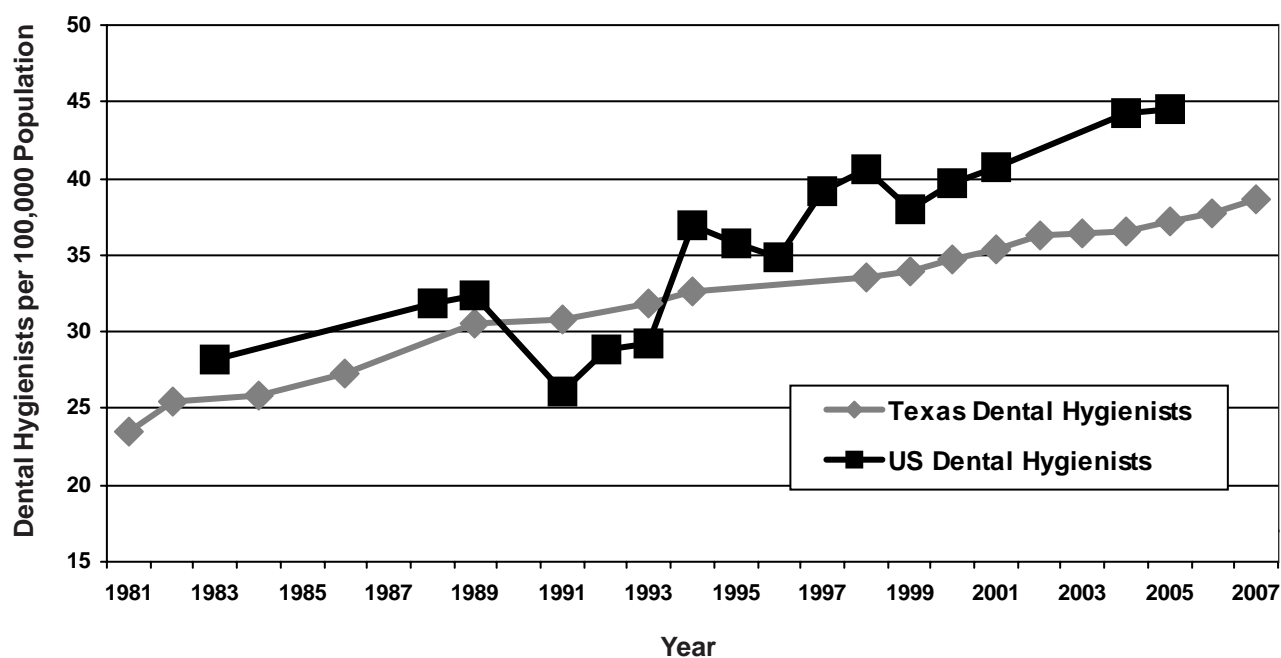
# of counties with an increase in number of dental hygienists 1998-2007:	118
# of counties with a decrease in number of dental hygienists 1998-2007:	65
# of counties with no dental hygienists in 2007:	57

\*Dental Health Professional Shortage Areas



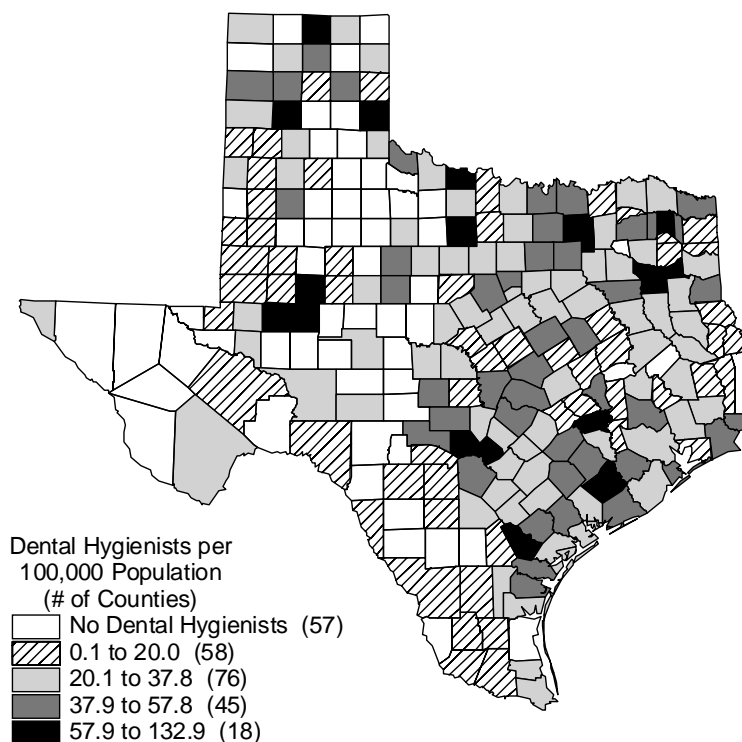
# Dental Hygienists

**Figure 50. Dental Hygienists per 100,000 Population, U.S. and Texas, 1981-2007**



Source: Texas State Board of Dental Examiners;  
HRSA, Bureau of Health Professions  
Figures include all licensed, active, in-state dental hygienists

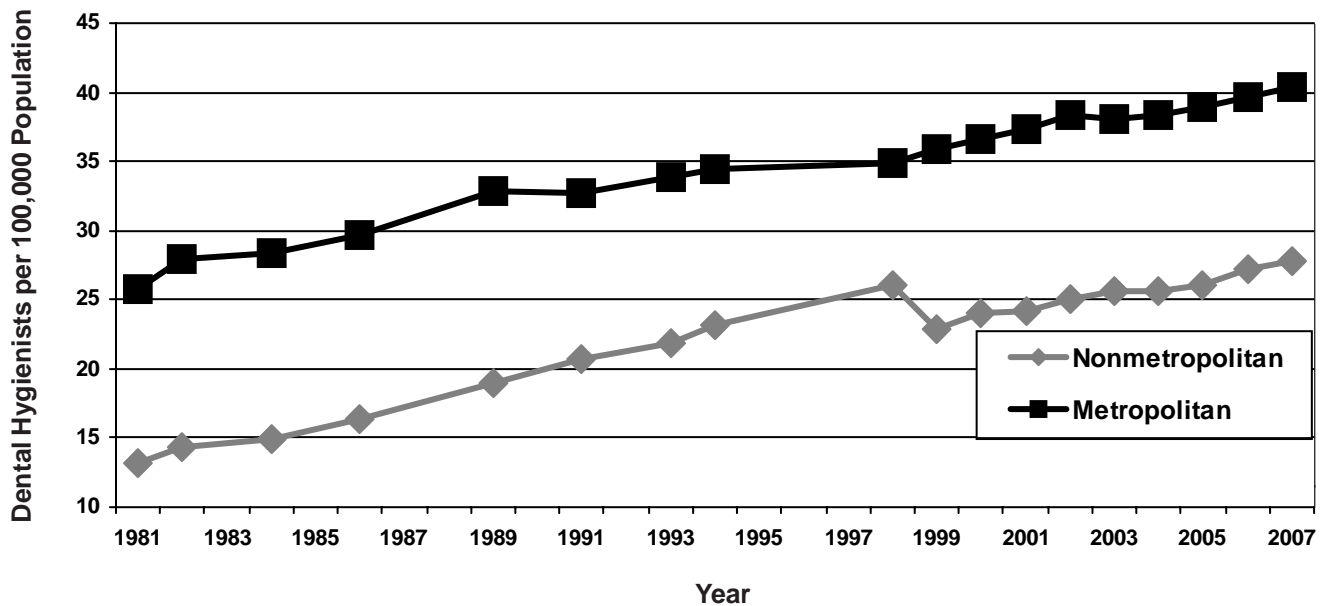
**Figure 51. Dental Hygienists per 100,000 Population, Texas, 2007**



Source: Texas State Board of Dental Examiners  
Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

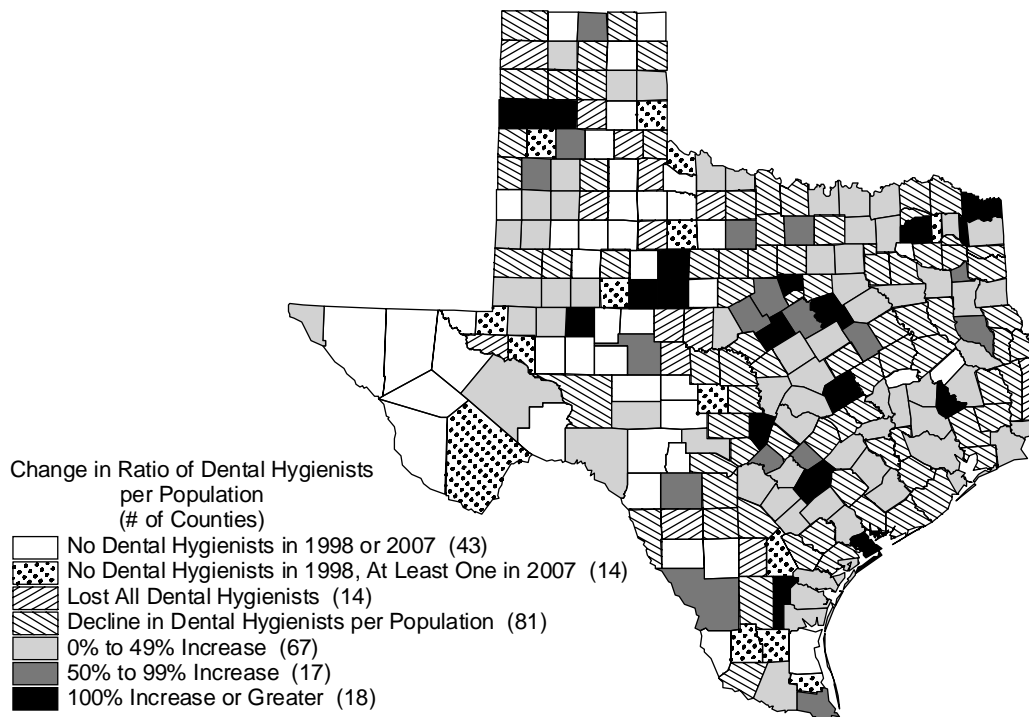
# Dental Hygienists

**Figure 52. Dental Hygienists per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1981-2007**



Source: Texas State Board of Dental Examiners  
 Source for Metropolitan-Nonmetropolitan definition: Office of Management and Budget  
 Figures include all licensed, active, in-state dental hygienists

**Figure 53. Percent Change in Ratio of Dental Hygienists per 100,000 Population from 1998 to 2007**



Source: Texas State Board of Dental Examiners  
 Produced By: Health Professions Resource Center, Center for Health Statistics,  
 Texas Department of State Health Services

# ALLIED HEALTH PROFESSIONS

## **ALLIED HEALTH PROFESSIONS**

Medical Radiologic Technologists .....	55
Occupational Therapists .....	58
Optometrists .....	61
Pharmacists .....	64
Physical Therapists .....	67
Psychologists .....	70

# Medical Radiologic Technologists

A Medical Radiologic Technologist (MRT), sometimes called a general radiographer or x-ray tech, uses x-ray equipment to create images of the internal body to diagnose injury and disease. MRTs are also trained to operate advanced computer-aided imaging equipment such as computerized tomography (CT scanners). MRTs prepare patients for various diagnostic procedures including administering radiopaque mixtures to patients so that internal organs may be observed and identified on the film, positioning patients between the x-ray source and the film, and providing protection to unaffected areas. MRTs also determine the proper intensity and exposure time for the production of x-rays, process film, maintain equipment, and keep patients' records. Their services are performed at the request and under the supervision of a physician.

During the 1990s, Texas lagged behind the U.S. in its ratio of MRTs per 100,000 population. The Texas ratio surpassed the U.S. ratio in 2002 (Figure 54). However, the Texas ratios have fluctuated in recent years, and data for the U.S. were not available. Nonmetropolitan counties in Texas have smaller supply ratios than do metropolitan counties (Figure 56). In general, the lowest ratios were in South Texas, West Texas, and the Panhandle (Figure 55). Since 1998, there has been a growth in ratios in 172 counties distributed throughout the state, including the border counties, but the largest clusters of growth have been in Central and East Texas. The 53 counties that showed a decline in ratios were also distributed throughout the state; often, these counties were partially surrounded by counties showing 50% or greater increases in ratios. All but one of the counties showing a decline were non-metropolitan counties, while only 47 of the 101 counties showing an increase of 50% or greater were non-metropolitan. Thirteen counties that did not have an MRT in 1998 had at least one in 2007 (Figure 57). However, eight counties that had MRTs in 1998 did not have any in 2007. In 2007, there were 37 counties with no MRTs (Table 12).

**Table 12: Summary Statistics for Medical Radiologic Technologists (MRTs) in Texas**

**MRTs per  
100,000 Population**

1994: 56.5  
1999: 65.3  
2004: 90.7  
2007: 80.9

**Total MRTs**

10,385  
13,061  
20,455  
19,204

**2007 MRTs Facts:**

Race/Ethnicity	Gender	Median Age
Not Available	Not Available	41

**Number of MRTs per 100,000 Population in 2007**

Metropolitan Border Areas:	62.1
Nonmetropolitan Border Areas:	29.3
Metropolitan non-Border Areas:	86.3
Nonmetropolitan non-Border Areas:	66.2

For the 119 counties designated as whole county HPSAs\*: 36.8

For the 68 counties designated as partial county or special population HPSAs\*: 89.3

For the 67 counties not designated as HPSAs\*: 71.7

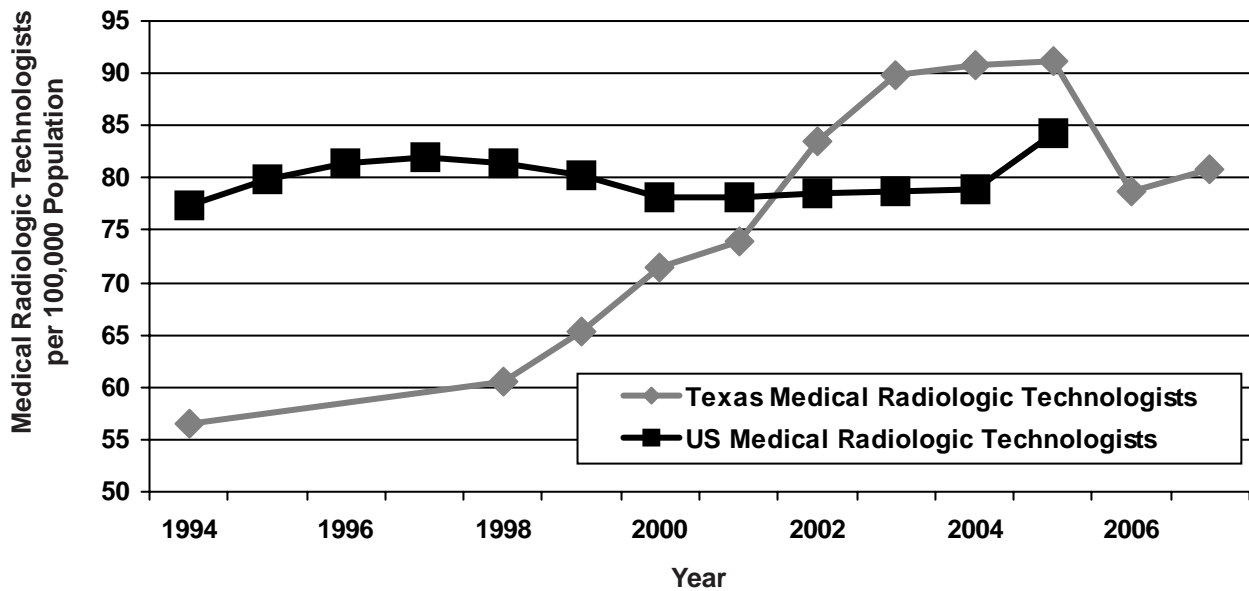
**County Level Data**

# of counties with an increase in number of MRTs 1998-2007:	170
# of counties with a decrease in number of MRTs 1998-2007:	34
# of counties with no MRTs in 2007:	37

\*Health Professional Shortage Areas

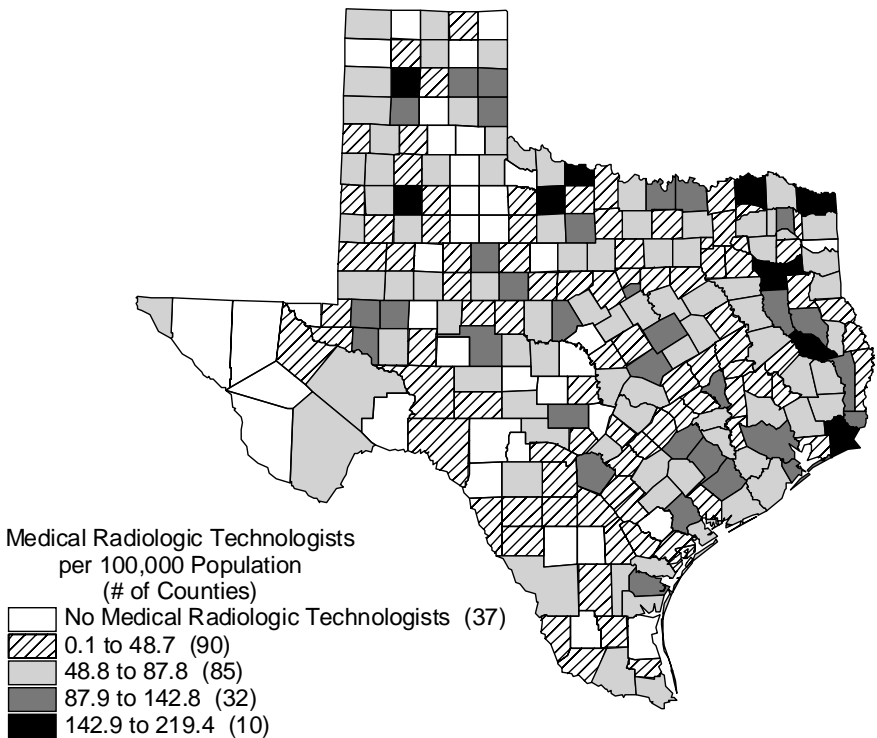
# Medical Radiologic Technologists

**Figure 54. Medical Radiologic Technologists per 100,000 Population, U.S. and Texas, 1994-2007**



Source: Professional Licensing and Certification Unit, DSHS;  
American Registry of Radiologic Technologists  
Figures include all licensed, active, in-state medical radiologic technologists

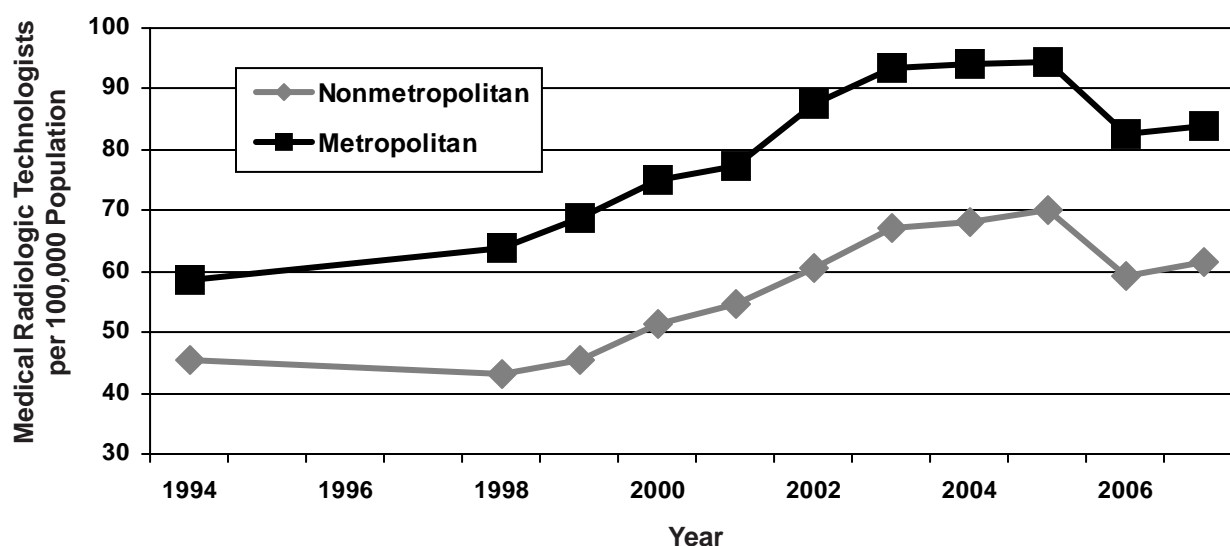
**Figure 55. Medical Radiologic Technologists per 100,000 Population, Texas, 2007**



Source: Professional Licensing and Certification Unit, DSHS;  
Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

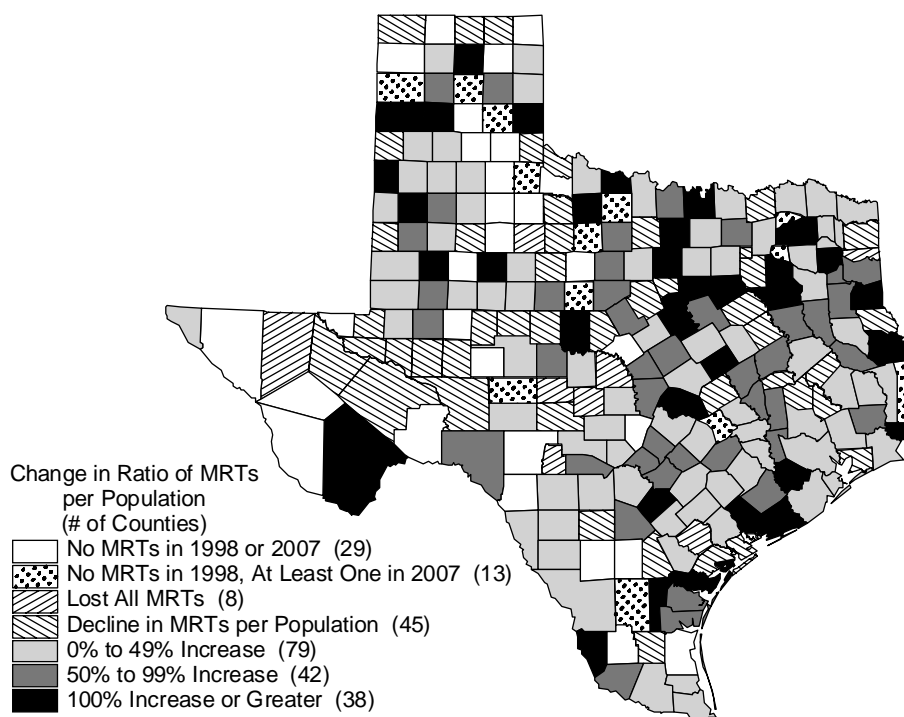
# Medical Radiologic Technologists

**Figure 56. Medical Radiologic Technologists per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1994-2007**



Source: Professional Licensing and Certification Unit, DSHS  
 Source for Metropolitan-Nonmetropolitan definition: Office of Management and Budget  
 Figures include all licensed, active, in-state medical radiologic technologists

**Figure 57. Percent Change in Ratio of Medical Radiologic Technologists per 100,000 Population from 1998 to 2007**



Source: Professional Licensing and Certification Unit, DSHS;  
 Produced By: Health Professions Resource Center, Center for Health Statistics,  
 Texas Department of State Health Services

# Occupational Therapists

An Occupational Therapist (OT) is a licensed rehabilitation care professional who works to restore or improve physical abilities, promote behavioral changes, adapt surroundings, and teach new skills. OTs provide services to individuals limited by physical injury or illness, a dysfunctional condition, cognitive impairment, psychosocial dysfunction, mental illness, a developmental or learning disability or an adverse environmental condition, whether due to trauma, illness or condition present at birth. The goal is to have the individual achieve her or his best physical and/or mental functioning in daily life tasks. OTs provide these services on the referral or prescription of a physician, physician assistant, or nurse practitioner. Occupational therapy services include, but are not limited to: the evaluation/assessment, treatment and education of or consultation with the individual, family or other persons; interventions directed toward developing, improving or restoring daily living skills, work readiness or work performance, play skills or leisure capacities; intervention methodologies to develop restore or maintain sensorimotor, oral-motor, perceptual or neuromuscular functioning; joint range of motion; emotional, motivational, cognitive or psychosocial components of performance.

The OT-to-population ratios in Texas increased steadily in the 1990s, but have fluctuated since 2002; however, there has still been a net increase. From 1997 to 2004, the ratios for Texas were higher than those for the U.S.; however, if trends hold, the U.S. ratio should again exceed that of Texas (Figure 58). The ratios for OTs are higher in the metropolitan areas than in the nonmetropolitan areas (Figure 60), and South Texas, West Texas, and the Panhandle counties have very low ratios; most of 97 counties with no OTs in 2007 were in these areas. Between 1999 and 2007, 108 counties experienced an increase in their OT ratios, including 21 counties that did not have an OT in 1999 had at least one in 2007 (Figure 61), while 70 counties experienced a decrease, including 21 counties that lost all of their OTs (Figure 61). In 2007, there were 97 counties with no OTs (Table 13).

**Table 13: Summary Statistics for Occupational Therapists (OT) in Texas**

OTs per 100,000 Population	Total OTs	<u>2007 Occupational Therapists Facts:</u>			
		Race/Ethnicity		Gender	Median Age
1991: 10.9	1,894	White	71.6%	Male	12.0% 40
1994: 15.0	2,756	Black	4.3%	Female	88.0% 39
2000: 22.2	4,526	Hispanic	13.1%		
2007: 24.1	5,729	Other	11.1%		

### Number of OTs per 100,000 Population in 2007

Metropolitan Border Areas:	18.9
Nonmetropolitan Border Areas:	6.0
Metropolitan non-Border Areas:	26.8
Nonmetropolitan non-Border Areas:	12.4

For the 119 counties designated as whole county HPSAs\*: 8.3  
For the 68 counties designated as partial county or special population HPSAs\*: 26.8  
For the 67 counties not designated as HPSAs\*: 22.1

### County Level Data

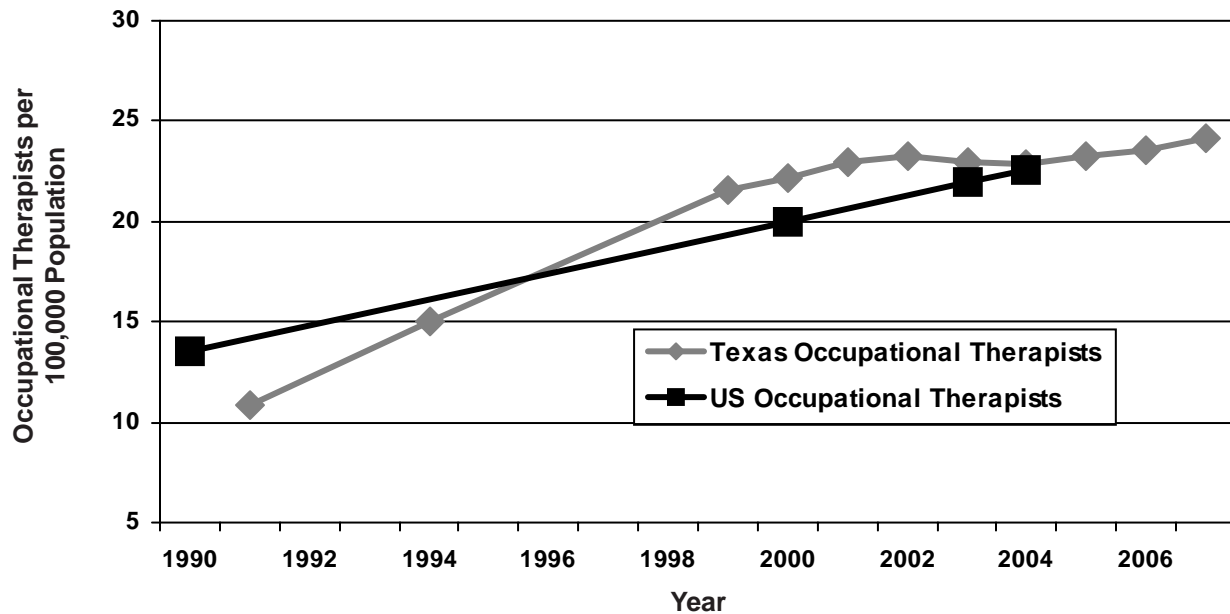
# of counties with an increase in number of OTs 1999-2007:	103
# of counties with a decrease in number of OTs 1999-2007:	47
# of counties with no OT in 2007:	97

\*Health Professional Shortage Areas



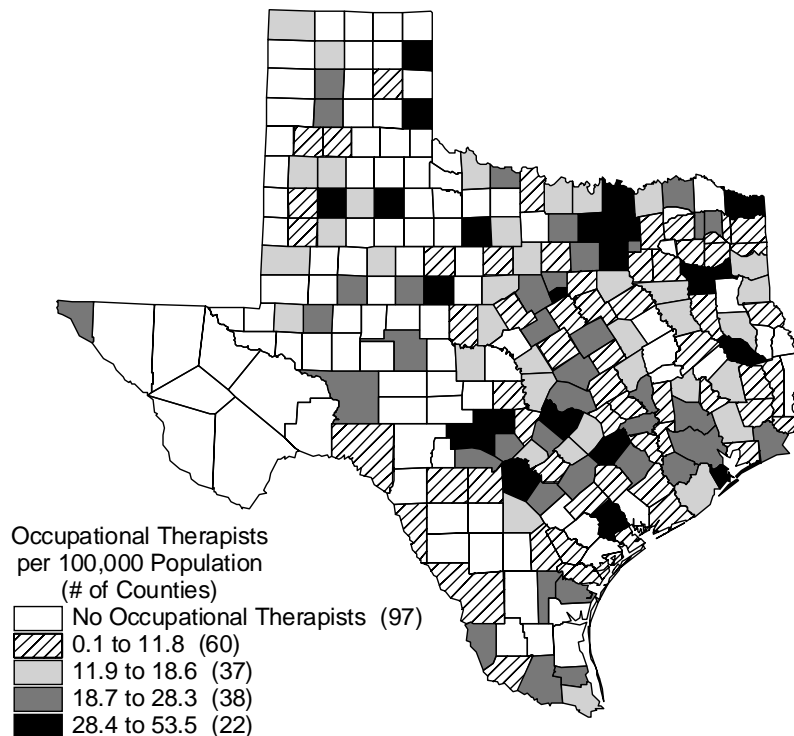
# Occupational Therapists

**Figure 58. Occupational Therapists per 100,000 Population, U.S. and Texas, 1990-2007**



Source: The Executive Council of Physical Therapy and Occupational Therapy Examiners ;  
*Health, United States, 2002*, U.S. DHHS, National Center for Health Statistics, August  
 2002, DHHS Pub. No. 1232  
 Figures include all licensed, active, in-state occupational therapists

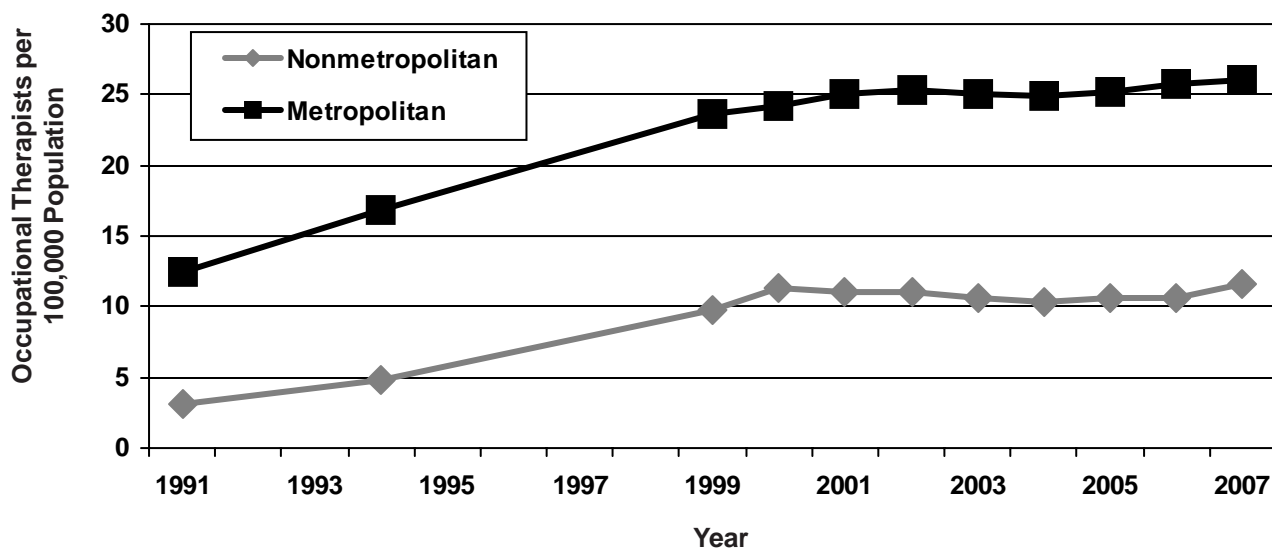
**Figure 59. Occupational Therapists per 100,000 Population, Texas, 2007**



Source: The Executive Council of Physical Therapy and Occupational Therapy Examiners  
 Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

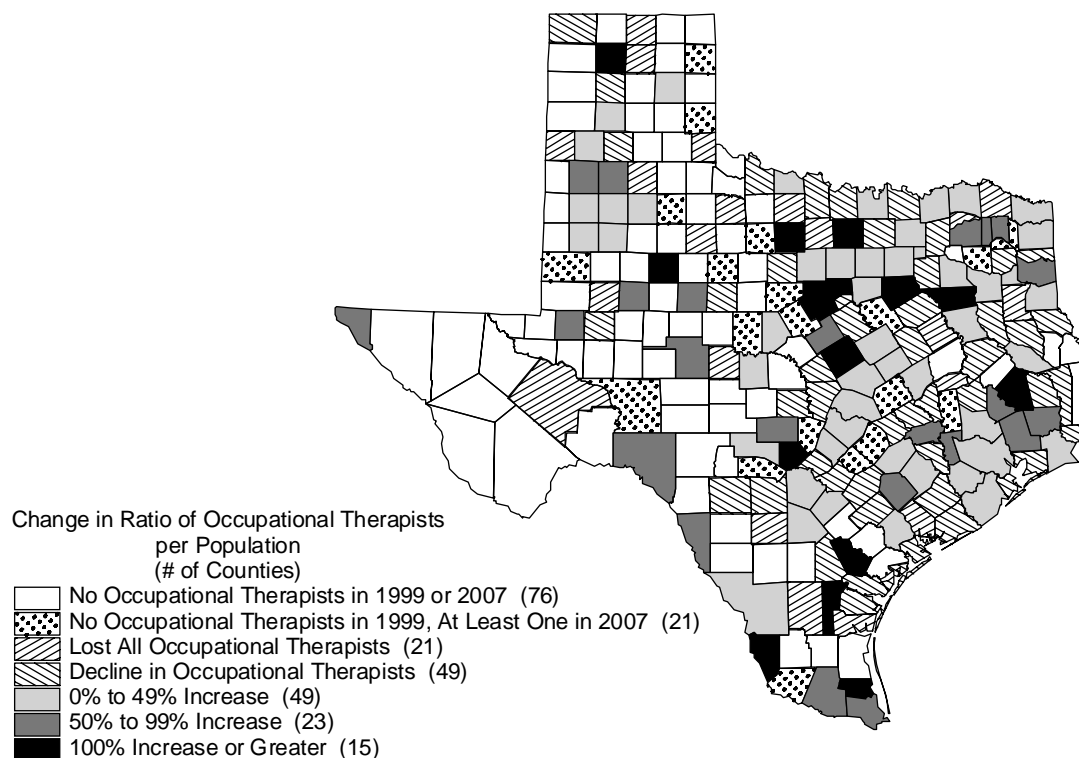
# Occupational Therapists

**Figure 60. Occupational Therapists per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1991-2007**



Source: The Executive Council of Physical Therapy and Occupational Therapy Examiners  
 Source for Metropolitan-Nonmetropolitan definition: Office of Management and Budget  
 Figures include all licensed, active, in-state occupational therapists

**Figure 61. Percent Change in Ratio of Occupational Therapists per 100,000 Population from 1999 to 2007**



Source: The Executive Council of Physical Therapy and Occupational Therapy Examiners  
 Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

# Optometrists

Optometrists (Doctors of Optometry) are primary health care providers who diagnose, manage, and treat conditions, diseases, deficiencies, and deformities of the human eye. Optometrists may prescribe a wide range of treatments ranging from ophthalmic drugs, visual training, eyeglasses, and contact lenses. Also, depending on the license held, optometrists may also co-manage glaucoma and prescribe oral medication. Doctors of Optometry must complete a four-year accredited program at a college of optometry. After graduation, the national and Texas Board examinations must be passed to be eligible for license. The only accredited school in Texas is at the University of Houston College of Optometry.

As with many other health professions, Texas lags behind the U.S. in supply ratios of optometrists, although the gap is closing (Figure 62). After rising steadily for over 2 decades, the ratios for Texas have fluctuated since 2002; some of this may be due to increased accuracy in reporting and not necessarily an actual decrease in the ratios. Optometrists are more likely to practice in metropolitan counties, but this hasn't always been the case. At one time, the ratios in the nonmetropolitan counties were higher than those of the metropolitan counties, but the metropolitan county ratios surpassed those of the nonmetropolitan counties in 1984, and the gap between the two has been steadily increasing since then (Figure 64). In 2007, the largest grouping of counties with high supply ratios was in Central Texas and the Houston area (Figure 63). Between 1999 and 2007, 77 counties experienced growth in their supply ratios; the largest grouping of these counties was in East Texas (Figure 65). Seven counties that did not have an optometrist in 1999 had a least one in 2007; however, 76 counties experienced a decrease in ratios, including eight counties that had optometrists in 1999 but did not have any by 2007. In 2007, there were 109 counties without an optometrist. As Figure 63 shows, there are several areas of Texas, notably the lower Panhandle area and portions of West Texas, where one would have to travel through several counties to reach an optometrist. The border counties also have very low supply ratios, and 18 of the 32 border counties have no optometrists.

**Table 14: Summary Statistics for Optometrists in Texas**

## Optometrists per 100,000 Population

1977:	7.5	1,003
1987:	9.4	1,561
1999:	10.5	2,096
2007:	11.2	2,668

## Total Optometrists

### 2007 Optometrists Facts:

Race/Ethnicity	Gender	Median Age
White 65.2%	Male 59.4%	48
Black 3.3%	Female 40.6%	37
Hispanic 9.1%		
Other 22.3%		

### Number of Optometrists per 100,000 Population in 2007

Metropolitan Border Areas:	5.8
Nonmetropolitan Border Areas:	5.0
Metropolitan non-Border Areas:	12.6
Nonmetropolitan non-Border Areas:	7.1

For the 119 counties designated as whole county HPSAs\*: 4.3

For the 68 counties designated as partial county or special population HPSAs\*: 12.0

For the 67 counties not designated as HPSAs\*: 11.6

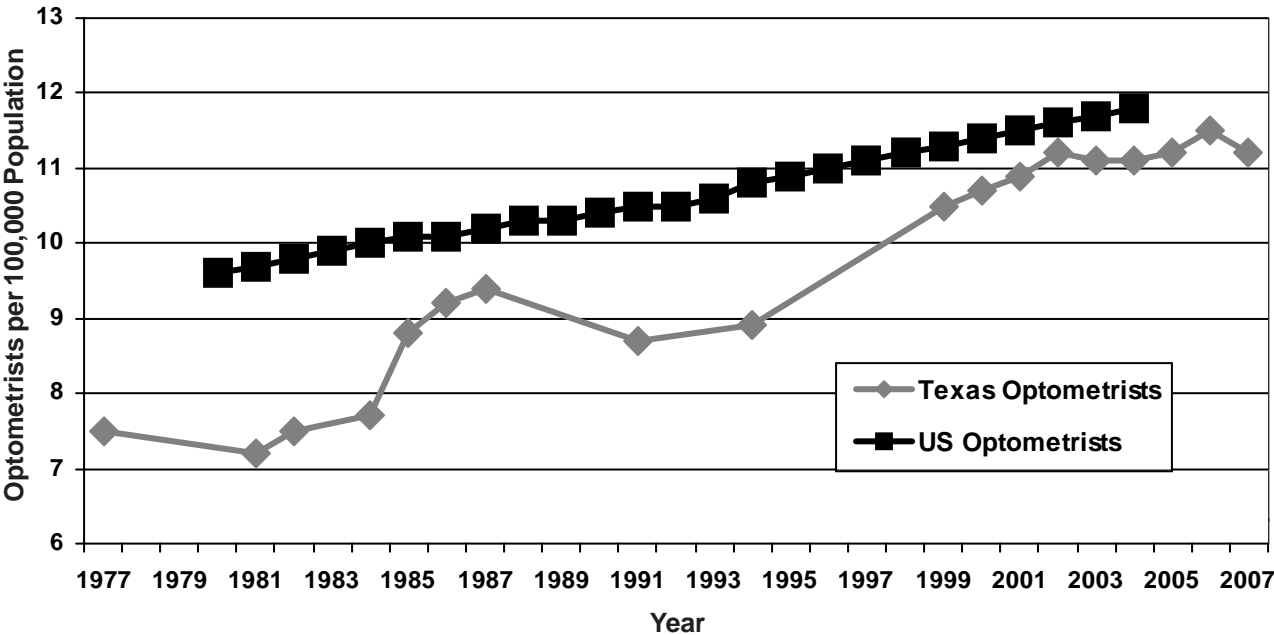
### County Level Data

# of counties with an increase in number of optometrists 1999-2007:	66
# of counties with a decrease in number of optometrists 1999-2007:	35
# of counties with no optometrists in 2007:	109

\* Health Professional Shortage Areas

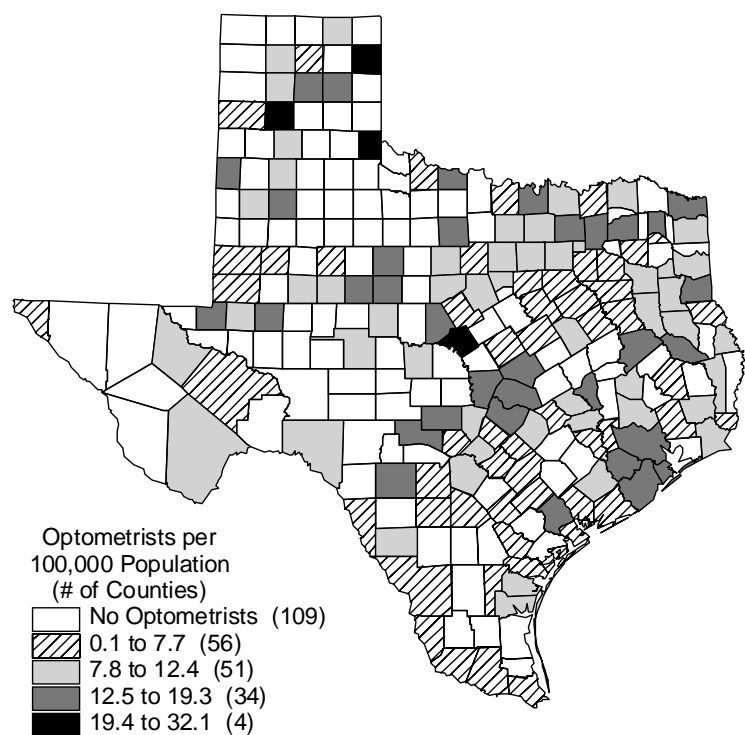
# Optometrists

**Figure 62. Optometrists per 100,000 Population, U.S. and Texas, 1977-2007**



Source: Texas Optometry Board;  
 HRSA, Bureau of Health Professions  
 Figures include all licensed, active, in-state optometrists

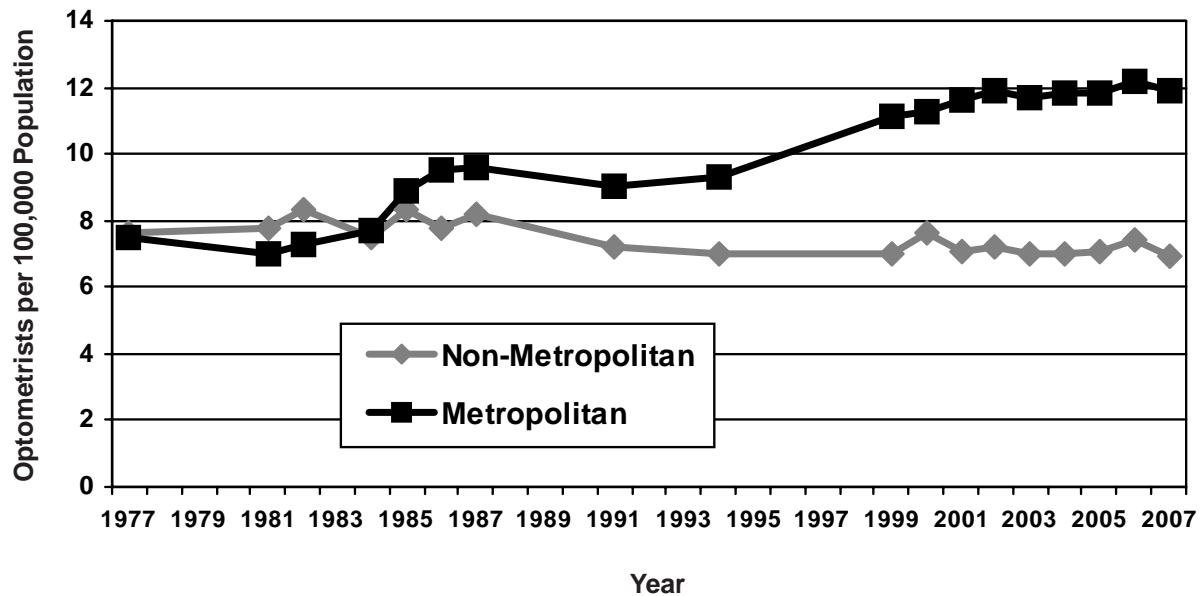
**Figure 63. Optometrists per 100,000 Population, Texas, 2007**



Source: Texas Optometry Board  
 Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

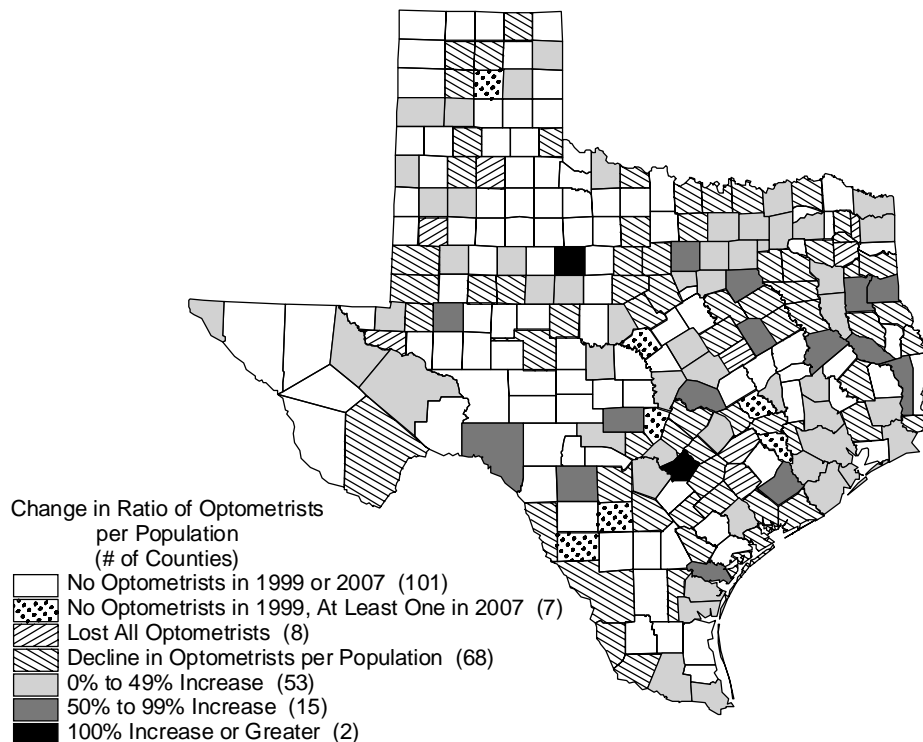
# Optometrists

**Figure 64. Optometrists per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1977-2007**



Source: Texas Optometry Board  
 Source for Metropolitan-Nonmetropolitan definition: Office of Management and Budget  
 Figures include all licensed, active, in-state optometrists

**Figure 65. Percent Change in Ratio of Optometrists per 100,000 Population from 1999 to 2007**



Source: Texas Optometry Board  
 Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

# Pharmacists

A pharmacist has expert knowledge of the medicines used to treat or prevent diseases or symptoms. They work with physicians, dentists and other health professionals who are authorized to write prescriptions. Pharmacists interpret and evaluate medication orders; compound, dispense and administer drugs; and advise health professionals and patients regarding the best use of medications for specific problems. Pharmacists also educate patients about medicines and help them make informed choices. To become licensed to practice pharmacy, an individual must graduate from a school or college of pharmacy that is accredited by the American Council on Pharmaceutical Education, complete an internship and pass an examination given by the State Board of Pharmacy. Texas has five Pharmacy programs, at the University of Texas at Austin, Texas Southern University, The University of Houston, Texas Tech University at Amarillo, and the recently opened Irma Rangel School of Pharmacy at Texas A&M University at Kingsville.

From 1978-2007, the state experienced a steady increase in the number of pharmacists; however, the supply ratios relative to the population, while showing a net increase over time, have fluctuated over the last decade. The Texas pharmacist-to-population ratios have exceeded the U.S. ratios since 1982 (Figure 66). For over two decades, the ratios for pharmacists have been higher in the metropolitan counties than in the nonmetropolitan counties, and the gap is increasing as the ratios for the nonmetropolitan counties show a net decline (Figure 68). The ratios are also lower for the border counties, both metropolitan and nonmetropolitan (Table 15). Even though the ratios have increased for Texas as a whole since 1999, 140 counties have experienced a decline in the ratios (Figure 69). Ninety-eight counties experienced an increase in supply ratios, including two counties that did not have a pharmacist in 1999 had gained one in 2007. And, in 2007, 24 counties were without a pharmacist (Table 15).

**Table 15: Summary Statistics for Pharmacists in Texas**

## Pharmacists per 100,000 Population

1978:	64.9	8,836
1988:	73.1	12,178
1999:	74.7	14,931
2007:	76.4	18,138

## Total Pharmacists

### 2007 Pharmacists Facts:

Race/Ethnicity	Gender	Median Age
White 60.9%	Male 50.6%	53
Black 13.2%	Female 49.4%	40
Hispanic 8.6%		
Other 17.3%		

## Number of Pharmacists per 100,000 Population in 2007

Metropolitan Border Areas:	43.0
Nonmetropolitan Border Areas:	30.1
Metropolitan non-Border Areas:	84.1
Nonmetropolitan non-Border Areas:	56.4

For the 119 counties designated as whole county HPSAs\*: 37.2  
 For the 68 counties designated as partial county or special population HPSAs\*: 83.8  
 For the 67 counties not designated as HPSAs\*: 68.4

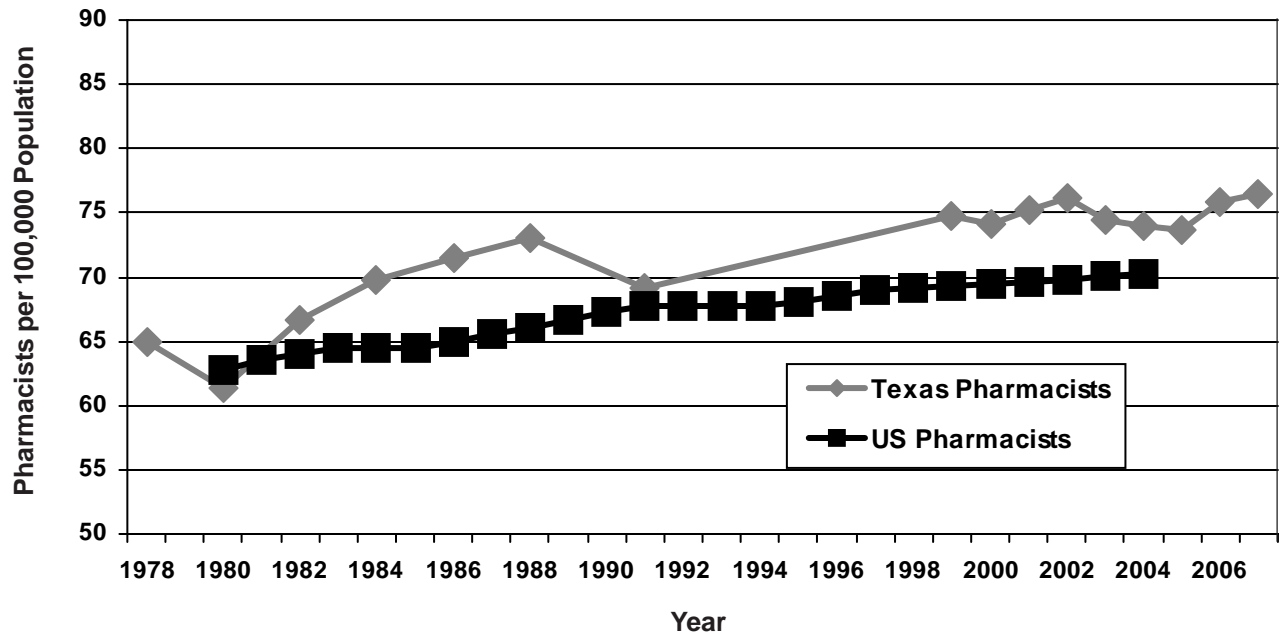
## County Level Data

# of counties with an increase in number of pharmacists 1999-2007:	110
# of counties with a decrease in number of pharmacists 1999-2007:	101
# of counties with no pharmacists in 2007:	24

\* Health Professional Shortage Areas

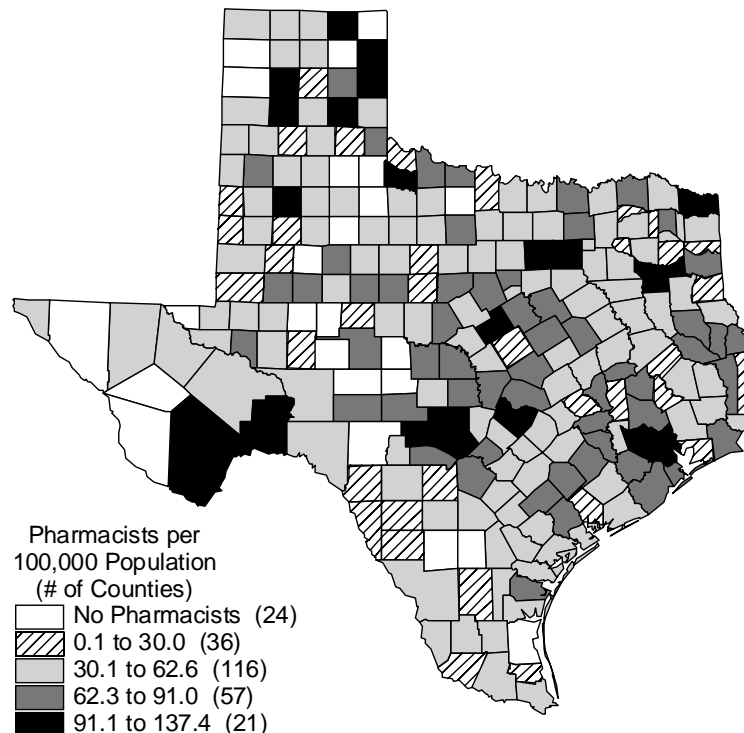
# Pharmacists

**Figure 66. Pharmacists per 100,000 Population, U.S. and Texas, 1978-2007**



Source: Texas State Board of Pharmacy;  
 HRSA, Bureau of Health Professions  
 Figures include all licensed, active, in-state pharmacists

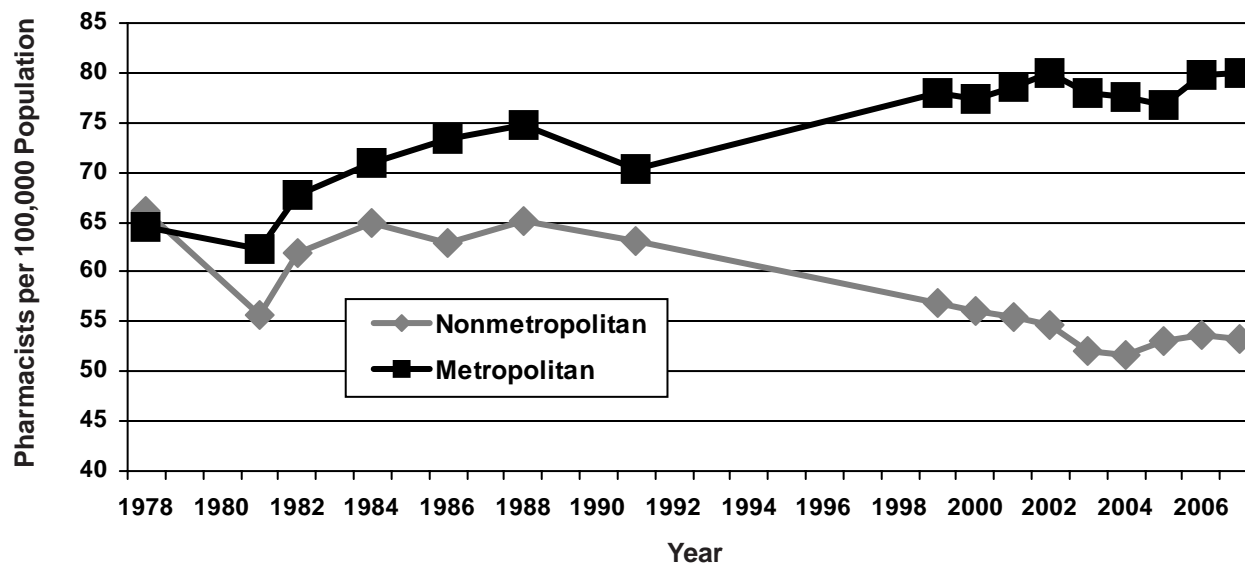
**Figure 67. Pharmacists per 100,000 Population, Texas, 2007**



Source: Texas State Board of Pharmacy  
 Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

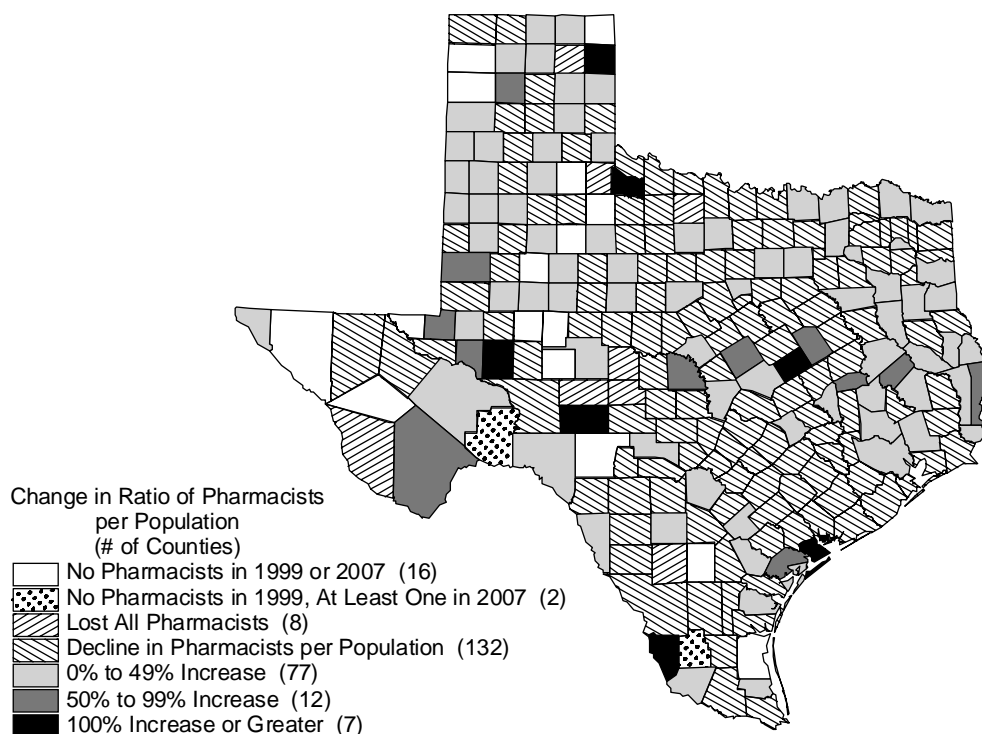
# Pharmacists

**Figure 68. Pharmacists per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1978-2007**



Source: Texas State Board of Pharmacy  
 Source for Metropolitan-Nonmetropolitan definition: Office of Management and Budget  
 Figures include all licensed, active, in-state pharmacists

**Figure 69. Percent Change in Ratio of Pharmacists per 100,000 Population from 1999 to 2007**



Source: Texas State Board of Pharmacy  
 Produced By: Health Professions Resource Center, Center for Health Statistics,  
 Texas Department of State Health Services



# Physical Therapists

A Physical Therapist (PT) helps patients who are disabled by illness or an accident or who were born with a development disability. APT plans and carries out programs to help these individuals gain strength, flexibility, endurance, coordination and overall physical functioning. A PT also provides programs to lessen pain and to prevent injury. PTs must receive a four-year bachelor's degree from an accredited university and then complete a master's level program. There are no bachelor's degree programs for PTs in Texas. In addition, the state of Texas requires that PTs hold at least a master's degree from an accredited PT program and pass a national exam administered by the Executive Council of Physical Therapy and Occupational Therapy Examiners. There are eleven accredited PT educational programs in the state.

The PT-to-population ratios for the U.S. have fluctuated over the last decade. In contrast, Texas has had a steady increase overall in the PT-to-population ratios over the last two decades, although they have remained fairly level since 1999, showing only a slight increase. The Texas ratios have lagged behind those of the U.S. for over two decades (Figure 70). The ratios in Texas are generally higher in the metropolitan areas of the state, with the exception of the border counties, which generally have much lower ratios (Figure 71). From 1999 to 2007, the ratios increased in 130 counties. These counties were scattered across the state (Figure 73). The largest concentrations of counties experiencing the most growth in ratios were in an area from Central Texas to the Dallas metropolitan area in North Texas. Twenty-nine counties that did not have a PT in 1999 had at least one in 2007, but during this time the ratios decreased in 84 counties; seven of these counties lost all of their PTs (Figure 73). In 2007, 47 counties did not have a PT.

**Table 16: Summary Statistics for Physical Therapists in Texas**

## PTs per 100,000 Population

1977:	10.0	1,326
1991:	19.4	3,373
1999:	35.5	7,096
2007:	39.0	9,260

## Total PTs

## 2007 Physical Therapists Facts:

Race/Ethnicity	Gender	Median Age
White 77.5%	Male 28.8%	40
Black 2.9%	Female 71.2%	40
Hispanic 6.5%		
Other 13.1%		

## Number of PTs per 100,000 Population in 2007

Metropolitan Border Areas:	23.9
Nonmetropolitan Border Areas:	14.1
Metropolitan non-Border Areas:	43.5
Nonmetropolitan non-Border Areas:	24.0

For the 119 counties designated as whole county HPSAs\*: 15.7

For the 68 counties designated as partial county or special population HPSAs\*: 41.9

For the 67 counties not designated as HPSAs\*: 39.3

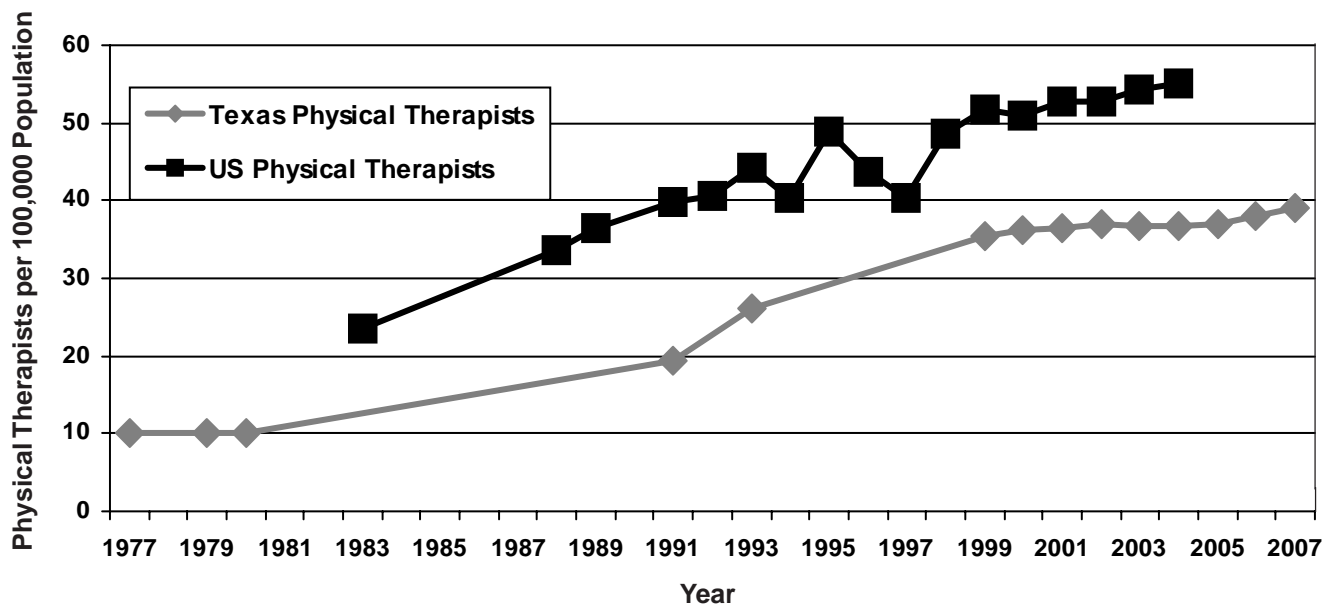
## County Level Data

# of counties with an increase in number of PTs 1999-2007:	130
# of counties with a decrease in number of PTs 1999-2007:	46
# of counties with no PTs in 2007:	47

\*Health Professional Shortage Areas

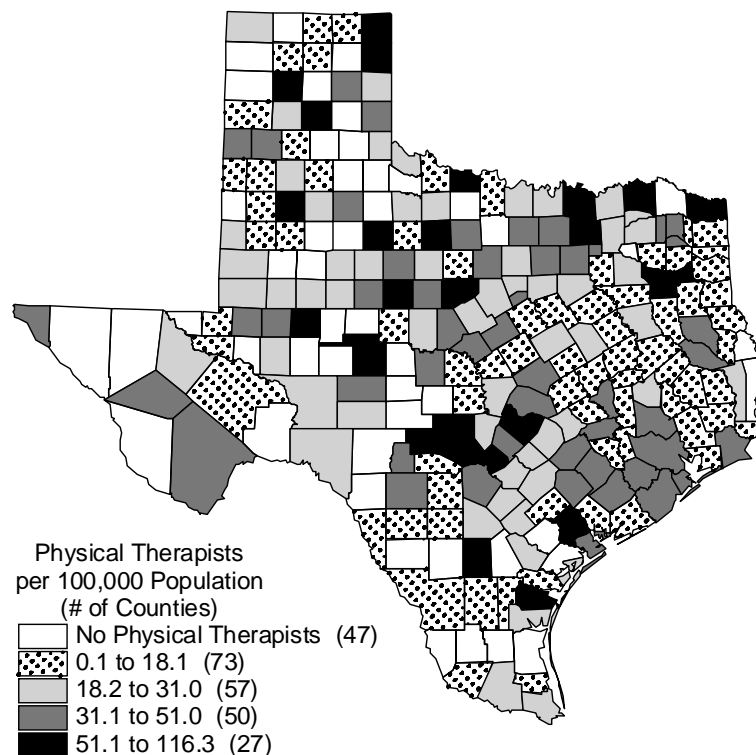
# Physical Therapists

**Figure 70. Physical Therapists per 100,000 Population, U.S. and Texas, 1977 to 2007**



Source: The Executive Council of Physical Therapy & Occupational Therapy Examiners; HRSA, Bureau of Health Professions  
 Figures include all licensed, active, in-state physical therapists

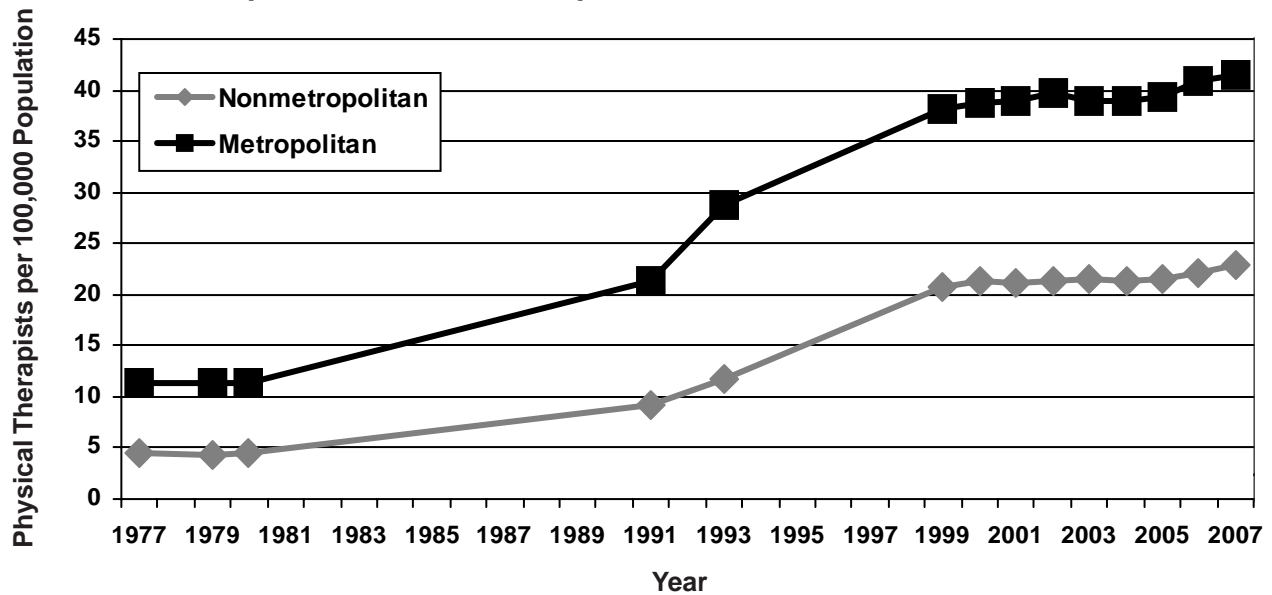
**Figure 71. Physical Therapists per 100,000 Population, Texas, 2007**



Source: Source: The Executive Council of Physical Therapy & Occupational Therapy Examiners  
 Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

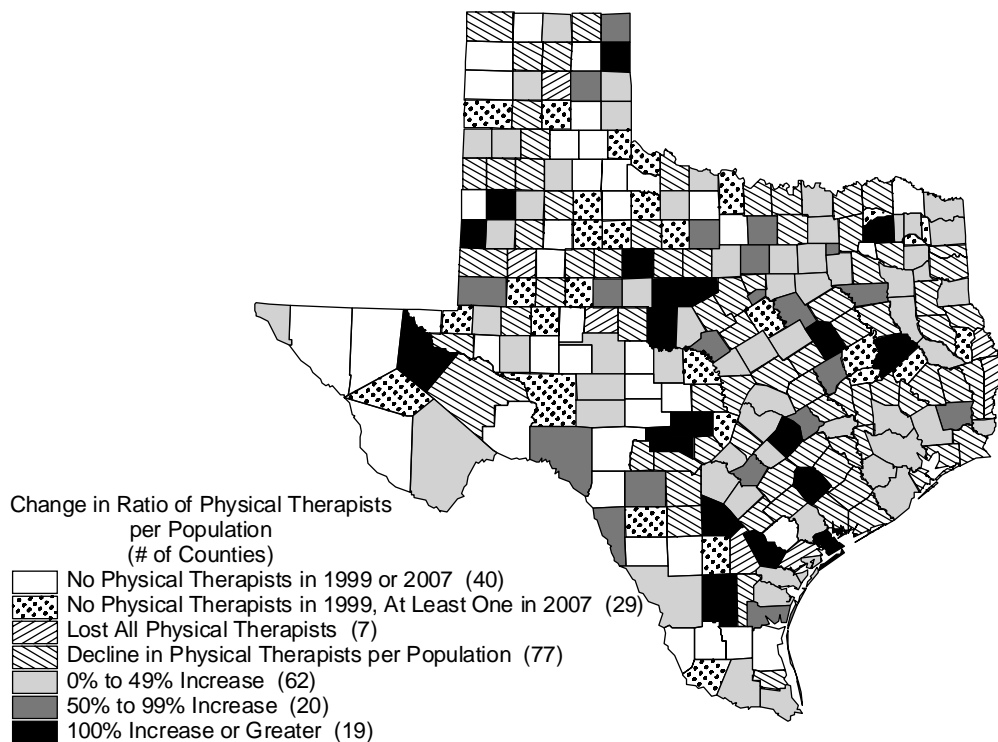
# Physical Therapists

**Figure 72. Physical Therapists per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1977 to 2007**



Source: The Executive Council of Physical Therapy & Occupational Therapy Examiners  
Figures include all licensed, active, in-state physical therapists

**Figure 73. Percent Change in Ratio of Physical Therapists per 100,000 Population from 1999 to 2007**



Source: Source: The Executive Council of Physical Therapy & Occupational Therapy Examiners  
Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

# Psychologists

A psychologist is a health care professional who diagnoses and treats mental, nervous, emotional, and behavioral disorders and ailments. Psychologists study the behavior, emotions, and thinking processes of individuals and groups to better understand their behavior. Psychologists work directly with patients using diagnostic tests and intervention techniques to help them deal with their problems. In Texas, there are four categories of psychologists: Licensed Psychologist (LP), Provisionally Licensed Psychologist (PLP), Licensed Specialist in School Psychology (LSSP), and Licensed Psychological Associate (LPA). A psychologist may hold more than one of these licenses. The statistics in this report represent an unduplicated count of those four types of psychologists.

An LP holds a doctoral degree and must pass an oral examination and have two years of supervised experience. A PLP (supervision required) must have a doctoral degree in psychology and pass the Examination for Professional Practice in Psychology at the doctoral level at 70%, and pass the Jurisprudence Examination at 90%. An LPA (supervision required) must have a master's degree that is primarily psychological in nature and must pass the Examination for Professional Practice in Psychology at the master's level at 55% and pass the Jurisprudence Examination at 80%. An LSSP (independent practice in public schools after one year of licensure) must complete a training program in school psychology approved/accredited by the American Psychological Association or the National Association of School Psychologists or have a master's degree in psychology with specified course work, and pass the National School Psychology Examination with a score of at least 660 and pass the Jurisprudence Examination at 90%.

Since 1999, the psychologist supply ratios have been higher for the U.S. than for Texas (Figure 74). And, the ratios have been greater in Texas metropolitan counties than in nonmetropolitan counties (Figure 76). In 2007, the largest concentration of counties with high ratios were in Central Texas (Figure 75). The border counties, Panhandle counties, and West Texas counties had very low ratios; most of these counties did not have any psychologists. Also, very few of those counties had an increase in supply ratios from 1999 to 2007; the largest cluster of growth was in North Texas, in the Dallas area and just south and east of Dallas County. (Figure 77). Between 1999 and 2007, 86 counties experienced an increase in ratios, while 73 experienced a decrease. Twenty-five counties that had no psychologists in 1999 had at least one in 2007 (Figure 77). Despite these gains, 13 counties that had one or more psychologists in 1999 had none in 2007, and a total of 108 counties had no psychologists in 2007 (Table 17).

**Table 17: Summary Statistics for Psychologists in Texas**

Psychologists per 100,000 Population	Total Psychologists
---	---------------------

1999:	24.8	4,955
2003:	24.9	5,432
2007:	25.0	5,942

## 2007 Psychologists Facts:

Race/Ethnicity	Gender	Median Age
Not Available	Not Available	Not Available

## Number of Psychologists per 100,000 Population in 2007

Metropolitan Border Areas:	8.9
Nonmetropolitan Border Areas:	4.7
Metropolitan non-Border Areas:	29.3
Nonmetropolitan non-Border Areas:	11.6

For the 119 counties designated as whole county HPSAs\*: 7.2

For the 68 counties designated as partial county or special population HPSAs\*: 28.3

For the 67 counties not designated as HPSAs\*: 21.8

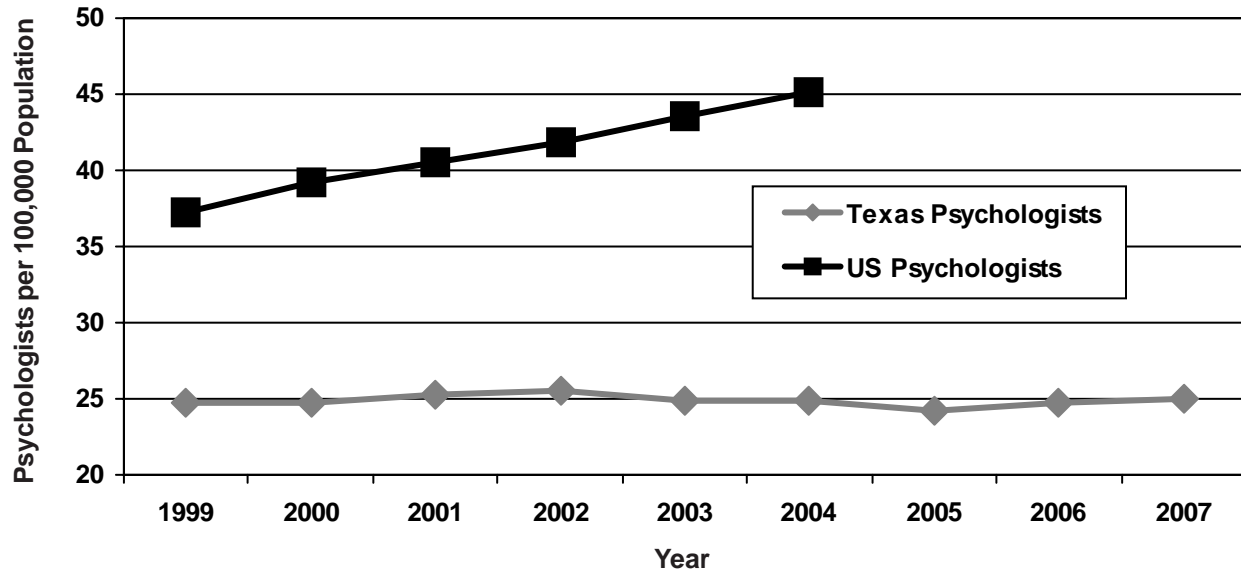
## County Level Data

# of counties with an increase in number of psychologists 1999-2007:	101
# of counties with a decrease in number of psychologists 1999-2007:	39
# of counties with no psychologists in 2007:	108

\*Health Professional Shortage Areas

# Psychologists

**Figure 74. Psychologists per 100,000 Population, U.S. and Texas, 1999 to 2007**

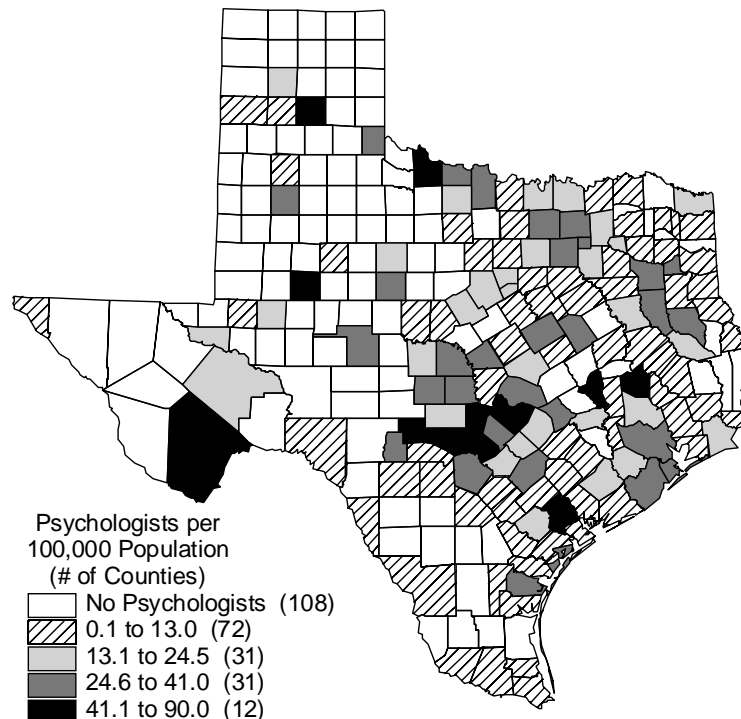


Source: Texas State Board of Examiners of Psychologists; US DHHS, Mental Health, United States, 2000

Figures include all licensed, active, in-state psychologists

Note: Actual U.S. data were used only for 1999; data for 2000-2004 were interpolated by HPRC staff using available data for past years and a linear regression model.

**Figure 75. Psychologists per 100,000 Population, Texas, 2007**

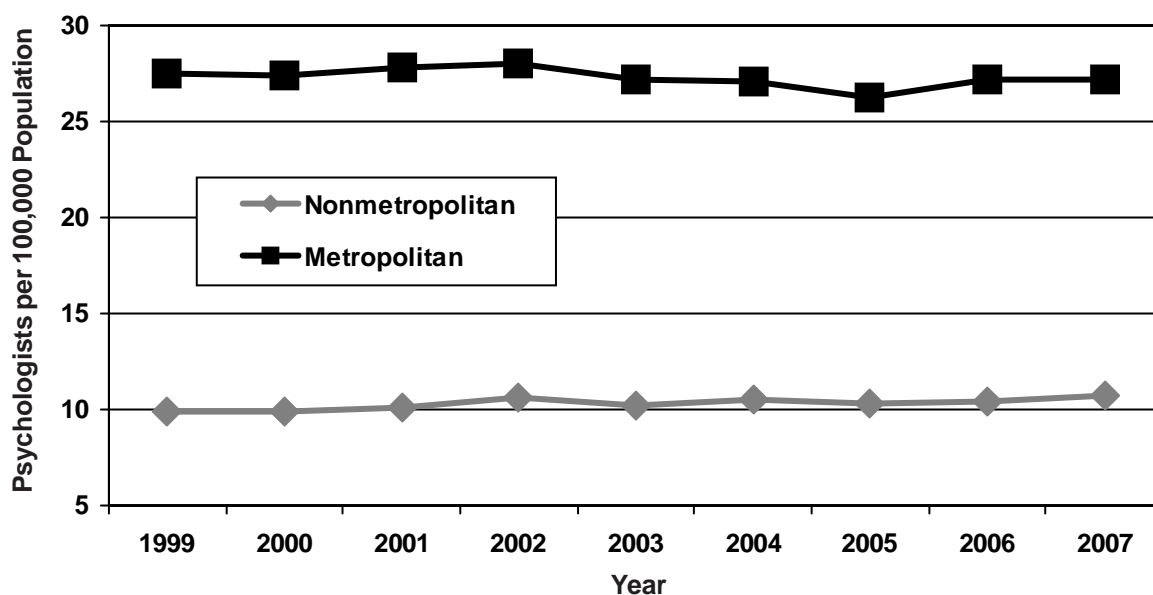


Source: Texas State Board of Examiners of Psychologists

Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

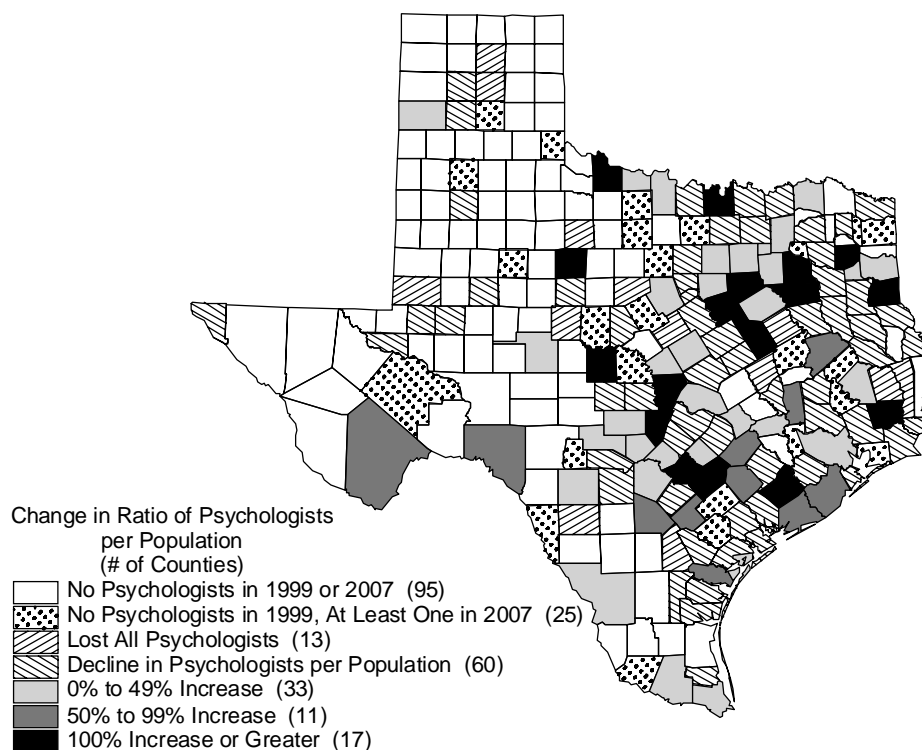
# Psychologists

**Figure 76. Psychologists per 100,000 Population, Metropolitan and Nonmetropolitan Counties, Texas, 1999 to 2007**



Source: Texas State Board of Examiners of Psychologists  
Figures include all licensed, active, in-state psychologists

**Figure 77. Percent Change in Ratio of Psychologists per 100,000 Population from 1999 to 2007**



Source: Texas State Board of Examiners of Psychologists  
Produced By: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services

# APPENDICES

## APPENDICES

APPENDIX I: Texas Population by County, 2007 .....	75
APPENDIX II: U.S. and Texas Population, 1980-2007 .....	78



## APPENDIX I

### Texas Population by County - 2007

The following table shows the 2007 population for each county in Texas (prepared by the State Data Center 9/26/06, Migration Scenario 2, downloaded 8/16/07), the percentage of the population that falls below the federal poverty rate, and the percentage of the population that is considered low income (up to 200% of federal poverty rate). The poverty rates are from the U.S. Bureau of the Census for 2004, and the low income information is from the Texas State Data Center, 2005 (these are the most recent available). Metropolitan counties are designated with an (M) and Border Counties are designated with a (B).

COUNTY	POPULATION 2007	% IN POVERTY 2004	% LOW INCOME 2005	COUNTY	POPULATION 2007	% IN POVERTY 2004	% LOW INCOME 2005
TEXAS	23,728,510	16.2	35.0	Collin (M)	722,692	5.5	12.9
Anderson	57,578	21.0	29.6	Collingsworth	3,174	17.5	48.7
Andrews	13,687	14.8	40.4	Colorado	22,037	14.7	35.8
Angelina	83,674	17.3	38.4	Comal (M)	99,055	9.3	25.2
Aransas (M)	25,077	18.9	42.8	Comanche	14,173	17.7	43.3
Archer (M)	9,429	9.7	28.6	Concho	4,017	19.4	24.9
Armstrong (M)	2,221	9.7	27.7	Cooke	39,578	13.4	33.2
Atascosa (M)	45,479	18.9	44.7	Coryell (M)	75,228	13.7	28.9
Austin (M)	27,277	11.2	32.2	Cottle	1,880	18.8	43.1
Bailey	7,072	17.6	49.2	Crane	4,277	10.8	42.9
Bandera (M)	20,607	12.3	32.7	Crockett (B)	4,367	15.9	46.8
Bastrop (M)	80,134	12.7	29.1	Crosby (M)	7,418	23.2	55.8
Baylor	4,088	17.2	42.6	Culberson (B)	3,241	22.0	56.7
Bee	34,213	24.9	35.8	Dallam	6,641	14.0	53.4
Bell (M)	260,121	13.2	33.3	Dallas (M)	2,327,105	17.0	32.9
Bexar (M)	1,541,881	17.3	36.9	Dawson	15,555	22.6	43.9
Blanco	9,976	10.3	28.9	Deaf Smith	19,891	16.5	51.2
Borden	759	6.3	33.7	Delta (M)	5,392	15.9	40.9
Bosque	18,339	13.8	34.6	Denton (M)	640,347	8.0	16.9
Bowie (M)	93,046	17.4	34.8	De Witt	20,562	19.4	40.2
Brazoria (M)	287,432	10.9	25.0	Dickens	2,908	18.9	36.9
Brazos (M)	165,086	19.0	41.9	Dimmit (B)	10,736	28.2	61.7
Brewster (B)	9,508	16.9	40.1	Donley	4,067	16.5	37.7
Briscoe	1,862	14.6	47.8	Duval (B)	13,690	25.3	53.8
Brooks (B)	8,491	28.8	67.3	Eastland	18,811	18.4	42.0
Brown	39,259	18.0	37.9	Ector (M)	128,642	19.3	44.6
Burleson (M)	18,213	15.4	38.6	Edwards (B)	2,250	21.9	59.5
Burnet	41,185	11.8	32.1	Ellis (M)	142,519	10.6	24.8
Caldwell (M)	37,830	14.7	35.8	El Paso (M)(B)	745,609	24.6	50.7
Calhoun (M)	21,543	16.6	38.4	Erath	36,748	15.3	37.0
Callahan (M)	13,607	14.0	37.9	Falls	18,814	21.7	43.5
Cameron (M)(B)	393,463	29.4	60.6	Fannin	34,933	15.4	30.9
Camp	13,149	17.1	41.4	Fayette	23,776	12.3	30.7
Carson (M)	6,532	8.2	25.5	Fisher	4,182	13.9	41.7
Cass	30,285	17.3	41.8	Floyd	8,095	20.5	46.2
Castro	8,802	19.2	52.0	Foard	1,611	15.8	45.6
Chambers (M)	32,090	10.7	27.1	Fort Bend (M)	489,074	8.1	19.3
Cherokee	49,315	18.2	41.9	Franklin	10,010	13.6	39.5
Childress	7,821	22.7	31.0	Freestone	19,650	15.2	35.7
Clay (M)	11,402	10.6	30.5	Frio (B)	17,220	28.0	52.8
Cochran	4,017	21.9	51.0	Gaines	15,589	18.1	49.8
Coke	3,950	13.0	34.5	Galveston (M)	280,796	13.4	29.8
Coleman	9,190	20.1	47.8	Garza	5,244	20.5	48.7
				Gillespie	23,271	10.2	28.3

# APPENDIX I

## Texas Estimated Population by County - 2007

COUNTY	POPULATION 2007	% IN POVERTY 2004	% LOW INCOME 2005	COUNTY	POPULATION 2007	% IN POVERTY 2004	% LOW INCOME 2005
Glasscock	1,505	7.3	42.4	Kleberg	34,850	22.7	48.0
Goliad (M)	7,415	15.3	36.4	Knox	4,235	20.6	49.4
Gonzales	20,114	18.3	47.8	Lamar	50,419	17.7	38.8
Gray	22,175	14.4	33.2	Lamb	15,313	19.3	50.3
Grayson (M)	119,071	13.6	29.7	Lampasas (M)	22,152	14.1	35.2
Gregg (M)	116,789	16.3	34.7	La Salle (B)	6,468	26.3	55.6
Grimes	25,761	16.9	36.9	Lavaca	19,424	12.8	37.7
Guadalupe (M)	111,304	11.4	28.7	Lee	17,268	11.7	31.0
Hale	37,590	19.7	43.9	Leon	16,925	13.9	35.4
Hall	3,836	22.1	56.1	Liberty (M)	80,589	16.0	32.3
Hamilton	8,377	15.3	36.8	Limestone	23,172	17.8	39.2
Hansford	5,645	13.5	36.6	Lipscomb	3,095	12.3	38.8
Hardeman	4,721	16.7	43.5	Live Oak	12,427	18.0	34.3
Hardin (M)	51,495	12.7	31.0	Llano	18,618	12.3	31.5
Harris (M)	3,801,506	16.8	34.7	Loving	66	15.0	19.4
Harrison	63,554	15.8	36.2	Lubbock (M)	256,339	17.8	38.9
Hartley	5,677	9.1	17.5	Lynn	6,851	19.0	51.6
Haskell	6,046	20.5	50.2	McCulloch	8,361	20.2	52.7
Hays (M)	147,834	12.6	28.5	McLennan (M)	223,520	18.3	38.1
Hemphill	3,489	7.7	33.4	McMullen (B)	871	11.2	42.0
Henderson	81,143	16.7	38.6	Madison	13,881	20.2	32.8
Hidalgo (M)(B)	725,105	30.5	64.8	Marion	11,230	21.6	46.8
Hill	35,635	16.2	39.8	Martin	5,128	17.5	49.3
Hockley	23,821	17.4	45.1	Mason	4,007	12.3	39.5
Hood	49,041	11.1	24.9	Matagorda	38,903	18.3	38.9
Hopkins	34,098	14.5	37.6	Maverick (B)	52,911	27.9	70.3
Houston	23,940	21.7	37.3	Medina (M)	44,251	15.9	37.6
Howard	33,970	19.9	36.9	Menard	2,529	21.0	51.0
Hudspeth (B)	3,768	26.6	66.7	Midland (M)	122,329	14.6	33.1
Hunt (M)	86,471	15.3	33.1	Milam	25,998	16.6	38.6
Hutchinson	23,192	12.6	32.6	Mills	5,135	16.0	41.4
Irion (M)	1,839	8.3	32.2	Mitchell	9,896	23.0	33.9
Jack	8,925	11.9	31.7	Montague	19,938	13.6	37.5
Jackson	14,695	14.3	34.7	Montgomery (M)	407,164	10.2	24.8
Jasper	36,479	18.7	41.2	Moore	21,204	13.9	42.6
Jeff Davis (B)	2,531	11.0	39.9	Morris	13,208	16.4	43.1
Jefferson (M)	253,369	18.7	35.6	Motley	1,421	14.7	40.9
Jim Hogg (B)	5,537	22.0	51.4	Nacogdoches	62,169	20.1	42.6
Jim Wells	41,535	21.4	51.9	Navarro	49,594	17.1	41.4
Johnson (M)	154,808	11.6	25.7	Newton	15,262	21.1	46.2
Jones (M)	20,777	20.5	33.6	Nolan	15,813	19.9	45.7
Karnes	15,893	24.9	38.6	Nueces (M)	322,467	19.4	40.1
Kaufman (M)	95,889	11.5	27.1	Ochiltree	9,746	12.2	35.6
Kendall (M)	30,871	8.8	23.9	Oldham	2,293	12.4	39.4
Kenedy (B)	454	14.2	64.3	Orange (M)	85,029	15.0	32.2
Kent	842	9.5	40.9	Palo Pinto	28,185	16.1	41.4
Kerr	47,029	13.2	33.6	Panola	22,985	14.2	38.0
Kimble	4,630	16.3	40.9	Parker (M)	110,363	10.3	23.3
King	365	9.1	42.1	Parmer	10,478	13.4	48.3
Kinney (B)	3,433	18.8	50.5	Pecos (B)	17,504	20.9	43.7

# APPENDIX I

## Texas Estimated Population by County - 2007

COUNTY	POPULATION 2007	% IN POVERTY 2004	% LOW INCOME 2005	COUNTY	POPULATION 2007	% IN POVERTY 2004	% LOW INCOME 2005
Polk	48,351	16.5	39.8	Taylor (M)	131,443	16.1	36.5
Potter (M)	123,047	21.2	44.4	Terrell (B)	1,097	15.1	50.9
Presidio (B)	8,273	26.4	67.9	Terry	13,331	21.6	49.5
Rains	11,212	14.4	36.0	Throckmorton	1,868	12.5	40.4
Randall (M)	112,068	8.0	23.7	Titus	30,938	16.0	45.2
Reagan	3,636	12.9	46.2	Tom Green (M)	104,176	16.0	37.4
Real (B)	3,217	20.9	50.4	Travis (M)	903,749	14.3	27.8
Red River	14,494	18.4	42.9	Trinity	14,820	18.1	43.2
Reeves (B)	12,801	25.9	57.0	Tyler	21,835	18.1	37.2
Refugio	8,196	14.7	41.8	Upshur (M)	37,629	15.7	37.4
Roberts	929	6.7	21.4	Upton	3,641	15.2	46.2
Robertson (M)	16,773	18.8	43.2	Uvalde (B)	27,950	22.2	52.9
Rockwall (M)	70,122	6.5	16.0	Val Verde (B)	49,003	22.1	53.4
Runnels	11,498	17.6	44.8	Van Zandt	52,742	13.7	35.1
Rusk (M)	49,196	15.2	35.9	Victoria (M)	88,266	16.1	33.8
Sabine	10,829	16.4	39.8	Walker	66,514	20.9	29.4
San Augustine	9,318	20.2	45.9	Waller (M)	41,394	17.3	34.4
San Jacinto (M)	24,348	17.9	40.1	Ward	11,352	17.1	42.8
San Patricio (M)	71,659	18.6	40.0	Washington	32,209	13.6	33.4
San Saba	6,294	18.2	37.8	Webb (M)(B)	242,788	26.8	60.1
Schleicher	3,107	13.4	41.4	Wharton	43,251	15.4	40.4
Scurry	16,638	17.2	36.4	Wheeler	5,095	11.9	38.6
Shackelford	3,378	12.1	38.8	Wichita (M)	127,600	15.9	33.0
Shelby	26,403	18.3	46.1	Wilbarger	14,790	16.0	34.5
Sherman	3,310	12.2	39.6	Willacy (B)	21,504	29.6	63.0
Smith (M)	193,217	14.5	34.2	Williamson (M)	356,545	7.1	14.3
Somervell	8,260	10.2	29.2	Wilson (M)	41,422	11.9	32.2
Starr (B)	63,674	34.8	78.6	Winkler	7,527	15.7	46.7
Stephens	9,930	18.8	36.6	Wise (M)	57,776	10.5	27.9
Sterling	1,456	11.2	37.5	Wood	40,871	14.5	34.7
Stonewall	1,703	15.6	39.6	Yoakum	7,918	14.2	49.1
Sutton (B)	4,408	12.9	40.0	Young	18,047	16.8	40.0
Swisher	8,757	20.1	42.1	Zapata (B)	14,996	27.2	60.1
Tarrant (M)	1,682,034	12.8	27.0	Zavala (B)	12,349	31.6	70.7

---

2007 Texas Aggregated Populations used in calculating ratios:

Nonmetropolitan border counties: 382,252

Nonmetropolitan non-border counties: 2,715,913

Metropolitan border counties: 2,106,965

Metropolitan non-border counties: 18,523,380

Counties not designated as primary care HPSAs: 4,918,924

Counties designated as partial county primary care HPSAs: 16,691,646

Counties designated as whole county primary care HPSAs: 2,117,940

Counties not designated as dental HPSAs: 9,242,504

Counties designated as partial county dental HPSAs: 11,801,063

Counties designated as whole county dental HPSAs: 2,684,943

## APPENDIX II

### U.S. and Texas Population 1980-2007

Year	U.S. Population	% Change From Previous Year	Texas Population	% Change From Previous Year	% of U.S. Population
1980	227,224,681	-	14,229,191	-	6.26
1981	229,465,714	0.99	14,746,544	3.64	6.43
1982	231,664,458	0.96	15,331,609	3.97	6.62
1983	233,791,994	0.92	15,751,925	2.74	6.74
1984	235,824,902	0.87	16,007,396	1.62	6.79
1985	237,923,795	0.89	16,272,963	1.66	6.84
1986	240,132,887	0.93	16,561,323	1.77	6.90
1987	242,288,918	0.90	16,621,944	0.37	6.86
1988	244,498,982	0.91	16,667,291	0.27	6.82
1989	246,819,230	0.95	16,806,937	0.84	6.81
1990	249,622,814	1.14	16,986,510	1.07	6.80
1991	252,980,941	1.35	17,349,000	2.13	6.86
1992	256,514,224	1.40	17,655,650	1.77	6.88
1993	259,918,588	1.33	18,031,484	2.13	6.94
1994	263,125,821	1.23	18,378,185	1.92	6.98
1995	266,278,393	1.20	18,723,991	1.88	7.03
1996	269,394,284	1.17	19,128,261	2.16	7.10
1997	272,646,925	1.21	19,439,337	1.63	7.13
1998	275,854,104	1.18	19,759,614	1.65	7.16
1999	279,040,168	1.15	20,044,141	1.44	7.18
2000	281,421,906	0.85	20,851,820	4.03	7.41
2001	285,226,284	1.35	21,325,018	2.27	7.48
2002	288,125,973	1.02	21,779,893	2.13	7.56
2003	290,796,023	0.93	22,118,509	1.55	7.61
2004	293,638,158	0.98	22,490,022	1.68	7.66
2005	296,507,061	0.98	22,859,968	1.64	7.71
2006	299,398,484	0.98	23,464,827	2.65	7.84
2007	not available	-	23,728,510	2.01	-

U.S. Population Data compiled by the North Carolina Health Professions Data System, Cecil G. Sheps Center for Health Services Research, and U.S. Bureau of the Census

Texas Population Data are estimates compiled by the Texas State Data Center, except 1990 and 2000 populations, which are actual counts from the U.S. Bureau of the Census.



A report by the Health Professions Resource Center  
produced in collaboration with the  
East Texas Area Health Education Center  
at the University of Texas Medical Branch in Galveston

December 2007